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## Energy Efficient Engine

# Acoustic Supporting Technology Report

by

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FOREWORD

This report represents the results of an effort to develop higher thermo-dynamic and propulsive efficiencies in the Energy Efficient Engine without sacrificing community noise concerns. The work was performed by the General Electric Company for the National Aeronautics and Space Administration, Lewis Research Center, under Contract NAS3-20643. Mr. R. D. Hager is the NASA Project Manager, and Mr. A. F. Schexnayder is the General Electric Manager. This report was prepared by Mr. S. P. Lavin and Dr. P. Y. Ho of the General Electric Company, Evendale, Ohio.

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## 1.0 SUMMARY

Higher thermodynamic and propulsive efficiencies for commercial turbofan aircraft engines were developed and demonstrated in the Energy Efficient Engine Program ( $E^3$ ), without sacrificing community noise concerns. This was accomplished by component acoustic development, testing, and analysis; design integration of recent acoustic technology advancements; and was finally demonstrated statically in an integrated component test (Integrated Core and Low Spool).

Component testing was concerned with two major studies. The first was an investigation into the effects of blade/vane ratio with respect to fan generated noise. The second was an investigation into the effects of forced mixer exhaust nozzle configuration. As a result of the fan blade/vane ratio study, it was demonstrated that a cut-on blade/vane ratio fan with large spacing ( $s/c = 2.3$ ) is as quiet as a cut-off blade/vane ratio configuration with tighter spacing ( $s/c = 1.27$ ). The conclusions of the mixer test investigations are that for subsonic velocities, separate flow nozzles are the noisiest, conic nozzles are the quietest, with the forced mixer nozzles in between.

Recent acoustic technology advancements which were incorporated into the  $E^3$  design included the utilization of Kevlar and Astroquartz mat material as a bulk absorber acoustic suppression material, and the selection of turbine vane/blade ratios so that the blade passing frequency tones are cut-off.

Projecting the statically demonstrated Integrated Core and Low Spool levels to flight, an average growth margin of 3.7 EPNdB is observed relative to FAR 36 Stage 3 at approach, 4.5 EPNdB at full power takeoff, and 7.2 EPNdB at the sideline conditions.

## **2.0 PROGRAM DESCRIPTION**

The overall objective of the Energy Efficient Engine (E<sup>3</sup>) program was to develop, evaluate and demonstrate the technology base for achieving higher thermodynamic and propulsive efficiencies in future commercial turbofan engines. This overall objective was achieved through a program involving the development of components and their technologies, integration of components in a core and a core/low spool test system, and evaluation of the integrated system performance.

### **2.1 PROGRAM NOISE GOALS**

The noise program goal was to ensure that the Flight Propulsion System (FPS) meets FAR Part 36 (as amended July 1978) with provisions for engine growth corresponding to future engine applications.

### **2.2 PLAN TO ASSURE MEETING NOISE GOALS**

The plan to ensure meeting noise goals required active integration with component designers, development of advanced technologies, and demonstration of principles with component and system testing. The work structure to facilitate this plan was broken down into four task areas:

- System Acoustic Prediction,
- Vane Frame Testing,
- Mixer Testing, and
- Integrated Core/Low Spool (ICLS) Testing.

### 3.0 FAN SCALE MODEL TEST

A scaled model fan vane-frame test program was conducted in 1978. The primary objective of the test was to evaluate the impact on forward radiated fan noise of a non-cutoff (i.e., all tones are acoustically propagating) vane-frame design (V/B ratio = 1.09) and compare the results to a conventional cut-off design (V/B ratio = 1.95).

#### 3.1 TEST FACILITIES

The test series was conducted in the fan noise anechoic chamber at the General Electric Corporate Research and Development Center in Schenectady, New York. The interior free space of the chamber is approximately 10.7 meters (35 feet) wide, 7.6 meters (25 feet) long, and 3.1 meters (10 feet) high (Reference Figure III.1.1). The air entering the chamber is drawn through the porous walls between 0.71 meter (28 inch) polyurethane foam wedges. The discharge air of the fan was ducted out of the building through an acoustically treated exhaust stack and a downstream discharge valve.

Acoustic measurements were made using an array of twelve 0.635 cm (0.25 in.) diameter microphones (B&K Type 4135) located on a 5.2 meter (17 feet) radius arc, centered one rotor diameter (approximately 0.5 meter) upstream of the rotor front face. The microphones were arranged on a grazing incidence at 10° intervals from 0° to 110° relative to the fan inlet centerline. Microphone signals were recorded on a Sangamo Sabre IV 28 track FM recorder.

A 2,500 horsepower motor-gear system was used to drive the fan. The model fan rig used for the test was the NASA 0.508 meter (20 inch) diameter transonic fan, designated as Rotor 11. The centerline of the fan was positioned 1.27 meters (4.2 feet) above the tip of the foam wedge on the floor. Detailed aerodynamic performance was reported by Kovich et al. (Reference 1). The original set of fan stators (48 vanes) was modified to simulate the ICLS engine (at that time) fan rotor - outlet guide vane (OGV) spacing (Reference Figure III.1.2). This fan has a maximum rated tip speed of 427 meter/sec (1,400 ft/sec) and a pressure ratio of 1.57. Fan speed and stage pressure

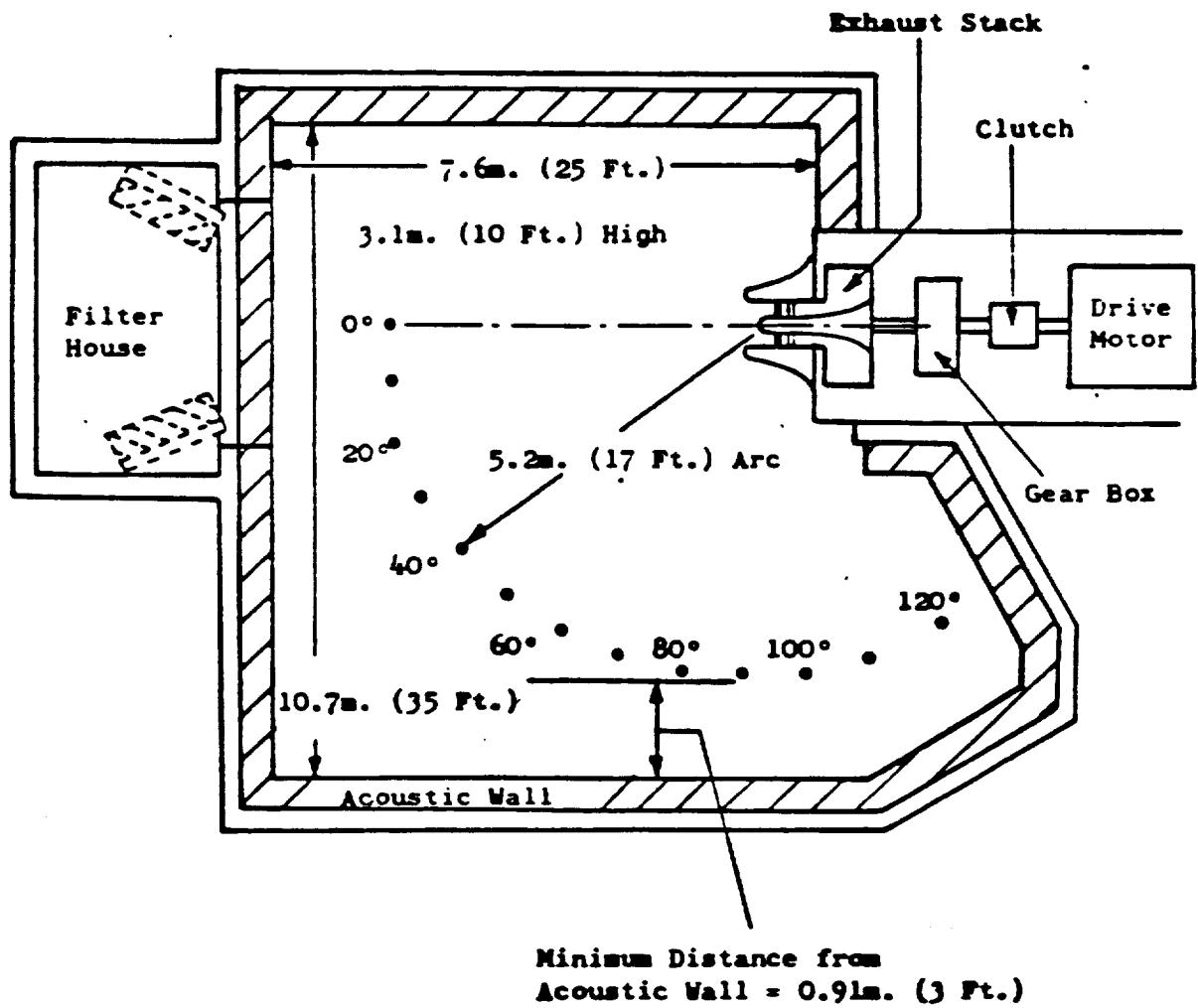


Figure III.1.1 Schematic of the General Electric CRD Aero/Acoustic Laboratory

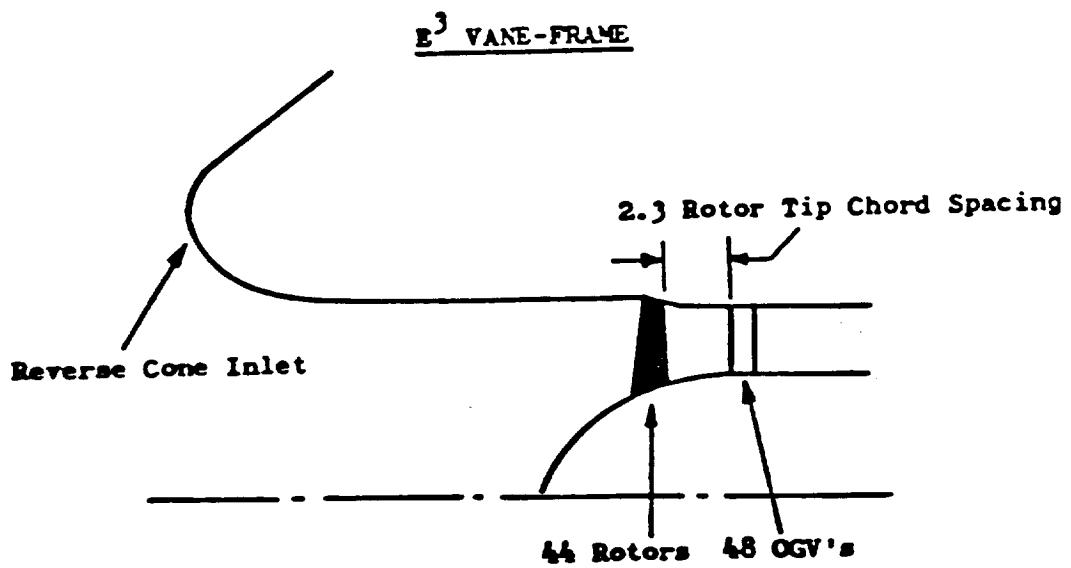
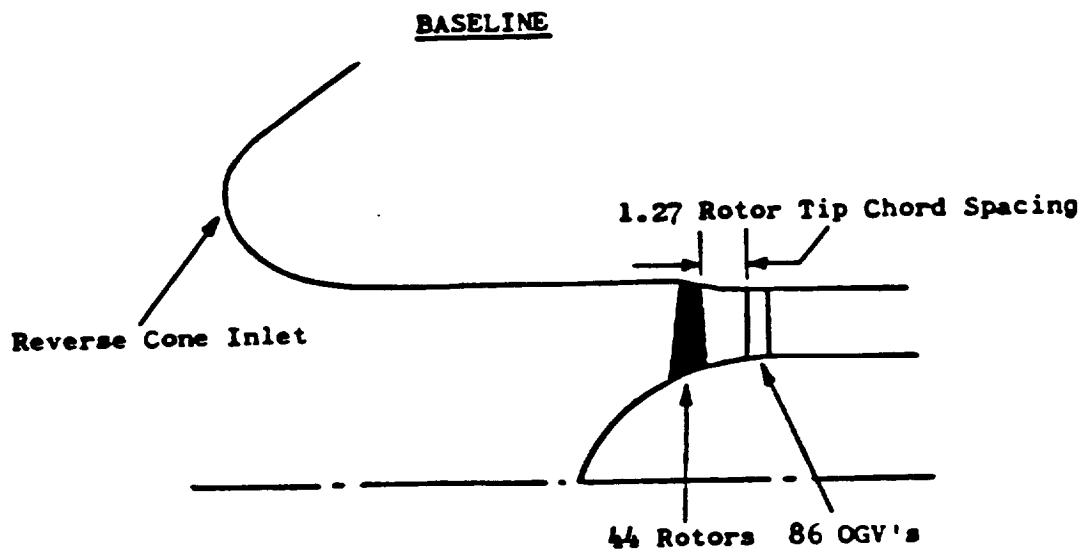


Figure III.1.2 Fan Rotor/OGV Configurations

ratio can be actively varied, with the stage pressure ratio controlled by the setting of a discharge valve downstream. The pertinent fan style design parameters for Rotor 11 as modified for this test are shown in Table III.1.1.

### 3.2 TEST PROCEDURE

A total of six configurations were tested during the fan scale model program (Reference Table III.2.1).<sup>1</sup> During the test program, it was discovered that a feltmetal strip in front of the fan rotor, intended to be used as an intake suction surface decreasing the boundary layer thickness, actually acted as a triggering device for boundary layer turbulence as well as a suppressor for high frequencies.

Each configuration had a total of 14 fan operating points (Reference Table III.2.2). The corresponding fan pressure ratio associated with the different discharge valve (DV) settings can be seen from the fan performance map shown in Figure III.2.1. The specific speed points tested were selected so as to be consistent with previous data taken with the facility. The discharge valve setting of 1.27 represented the fan being operated at or near the designed operating line defined in Reference 2.

### 3.3 TEST RESULTS

Detailed comparisons and discussions of the validity of the test data measured with the feltmetal strip in the inlet are given in Reference 3. The following sections highlight the results reported in this reference.

#### 3.3.1 VANE/BLADE RATIO EFFECTS

The primary objective of the scale model test was to evaluate the impact for forward radiated fan noise of a non-cutoff vane-frame design

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<sup>1</sup>Configuration numbers assigned to the different configurations are arbitrary and do not imply that a total of ten configurations were tested.

TABLE III.1.1  
ROTOR 11 TEST FAN STAGE DESIGN CHARACTERISTICS

	$E^3$	Baseline
Rotor Inlet Tip Diameter	0.504m (19.84 in)	-
Pressure Ratio	1.574	-
Rotor Blade Number	44	-
Stator Vane Number	48	86
Vane/Blade Ratio	1.09	1.95
Inlet Guide Vanes	None	-
Rotor Inlet Hub/Tip Radius Ratio	0.50	-
Rotor-Stator Tip Spacing	2.3 Rotor Chords	1.27
Rotor Rotative Speed	16100 RPM	-
Rotor Tip Speed	424.9m/sec (1394 ft/sec)	-
Rotor Tip Inlet Relative Mach No.	1.394	-
Rotor Chord (Midspan)	4.62cm (1.817 in)	-
Stator Chord (Midspan)	4.05cm (1.596 in)	2.54cm (1.00 in)
Rotor Aspect Ratio	2.5	-
Stator Aspect Ratio	2.3	3.6
Rotor Tip Solidity	1.298	-
Stator Tip Solidity	1.270	1.426
Corrected Inlet Weight Flow	29.5 Kg/sec (65 lb/sec)	-
Adiabatic Efficiency	85.5% (80.9% Measured)	-

TABLE III.2.1  
DESCRIPTION OF E<sup>3</sup> CONFIGURATIONS TESTED

CONFIGURATION NO.	TCS <sup>#</sup>	INNER FLOWPATH FELTMETAL STRIP	TREATED INLET	INNERFLOW PATH SUCTION
3	No	Yes	No	No
4,9*	Yes	Yes	No	No
5	No	Yes	Yes	No
6	Yes	Yes	Yes	No
7,8**	Yes	No	No	No
10	Yes	Yes	No	Yes

NOTES:      \* Configuration No. 9 is repeat of Configuration No. 4

              \*\* Configuration No. 8 is repeat of Configuration No. 7

              # TCS is an inflow cleanup device, commonly referred to as Turbulence Control Screen

TABLE III.2.2  
TEST MATRIX FOR EACH CONFIGURATION

		% FAN SPEED <sup>(1)</sup>						
DISCHARGE VALVE (DV) SETTING		54	60	69	74	80	86	100
0.0		X	X	X	X	X	X	X
1.27		X	X	X	X	X	X	X

(1) NOTE: Each Condition Repeated Except 60, 74, 80 and 100% Speed with  
 0.0 DV. 100% = 1,400 ft/sec Tip Speed

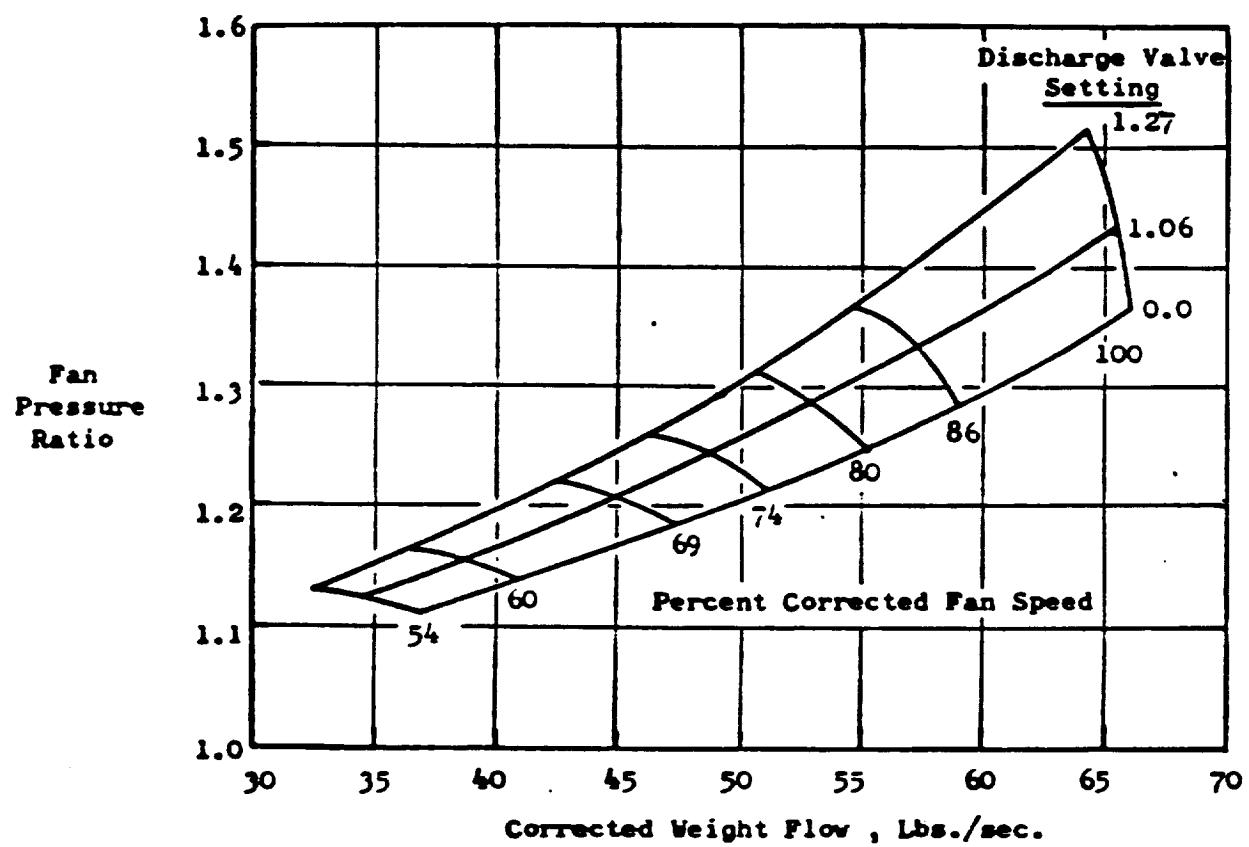


Figure III.2.1 Fan Performance from E<sup>3</sup> Scale Model Fan Test

(Vane/Blade ratio = 1.09), with and without a Turbulence Control Screen (TCS), when compared to a conventional cut-off design (V/B ratio = 1.95) run under the same conditions. The latter is defined as the Baseline configuration on Table III.1.1. It was the Rotor 11 base design reported in Reference 1. Comparisons of the blade passing frequency (BPF) one-third octave tone level directivity (Figures III.3.1 to III.3.3) shows that the scaled model E<sup>3</sup> vane frame configuration is slightly less than the baseline cut-off configuration which was previously tested by General Electric under a commercial engine program when a TCS was used. This is believed to be caused by larger vane/blade spacing for the E<sup>3</sup> configuration than the cut-off vane/blade ratio commercial engine configuration. Without a TCS, there is little or no difference between the configurations due to high rotor-turbulence interaction noise controlling the tone levels (Figures III.3.4 to III.3.9).

### 3.3.2 INFLOW TURBULENCE CONTROL SCREEN EFFECTS

The second objective of the scaled model test was to evaluate the impact on forward radiated fan noise of reducing the inflow turbulence to that of flight conditions. This effect, often referred to as flight clean-up, primarily affects only the tone levels and not broadband noise. Figures III.3.10 to III.3.12 show the BPF tone level directivities at three fan speeds for the hardwall inlet configuration, with and without a TCS, for the simulated E<sup>3</sup> vane-frame configuration. There appears to be a large change in clean-up effect between 60% and 74% speed. However, analysis of the spectra indicates that the 60% speed point has no discernable BPF tone on a one-third octave basis, either with or without a TCS. At 74% speed, the tone is much more pronounced for the case without TCS, and, consequently, the reduction is much greater when the TCS is in place (Figures III.3.13 to III.3.15).

### 3.3.3 INLET TREATMENT EVALUATION

The scale model tests were also used to evaluate inlet treatment effectiveness. The inlet treatment panels were 0.965 cm (0.38 inch) thick filled with DuPont Kevlar material to act as a bulk absorber. The treatment length was selected to give similar treatment length normalized by diameter (L/D) as the ICLS (L/D = 0.51).

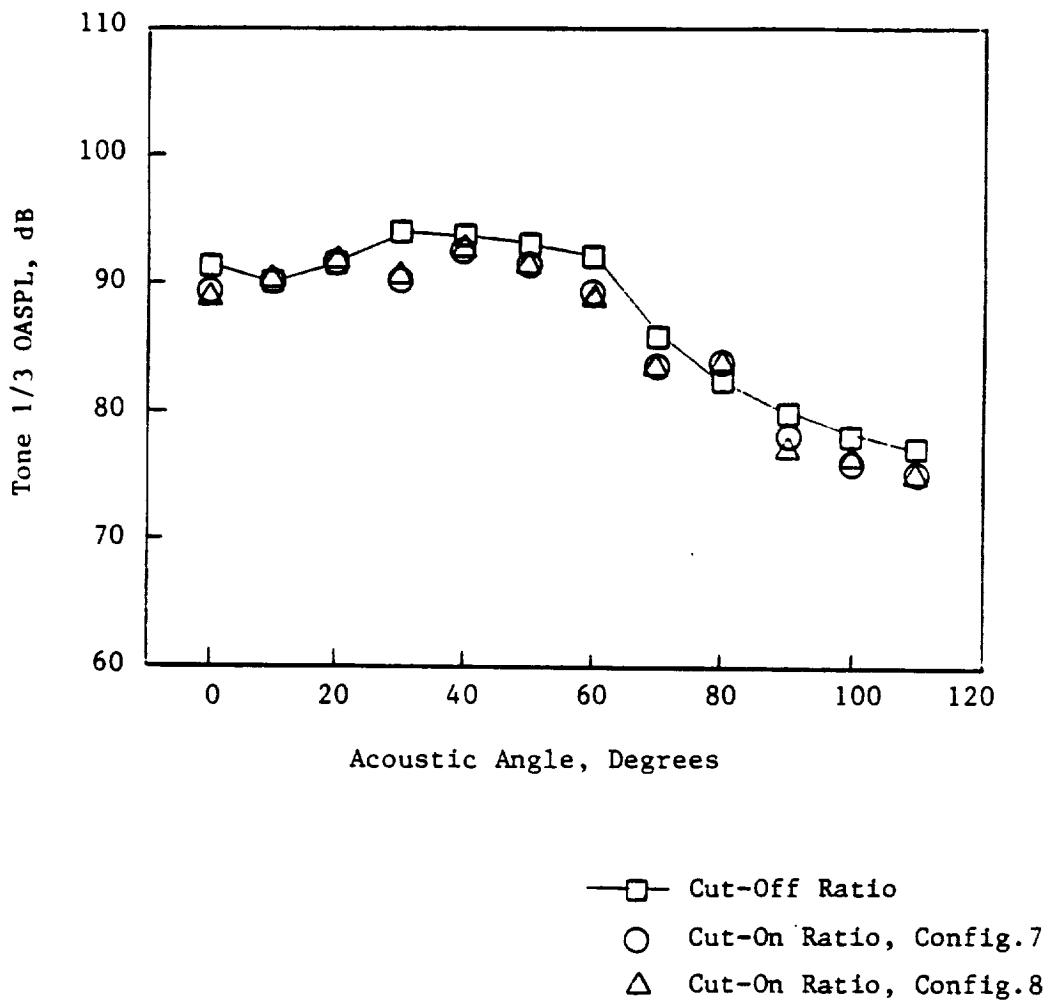


Figure III.3.1 Comparison of BPF Directivities of Cut-Off ( $V/B=1.95$ ) Ratio and Cut-On Ratio (1.09) with TCS at 60% Fan Speed,  $DV=1.27$

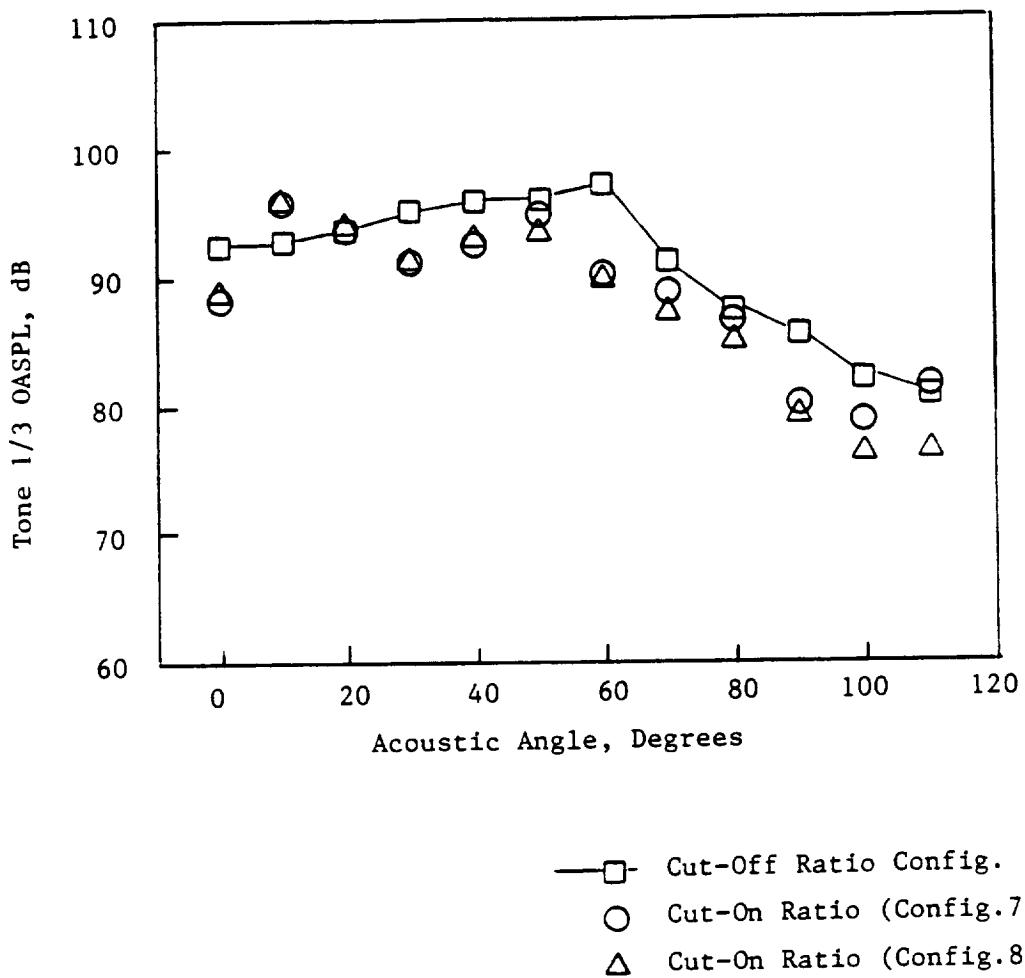
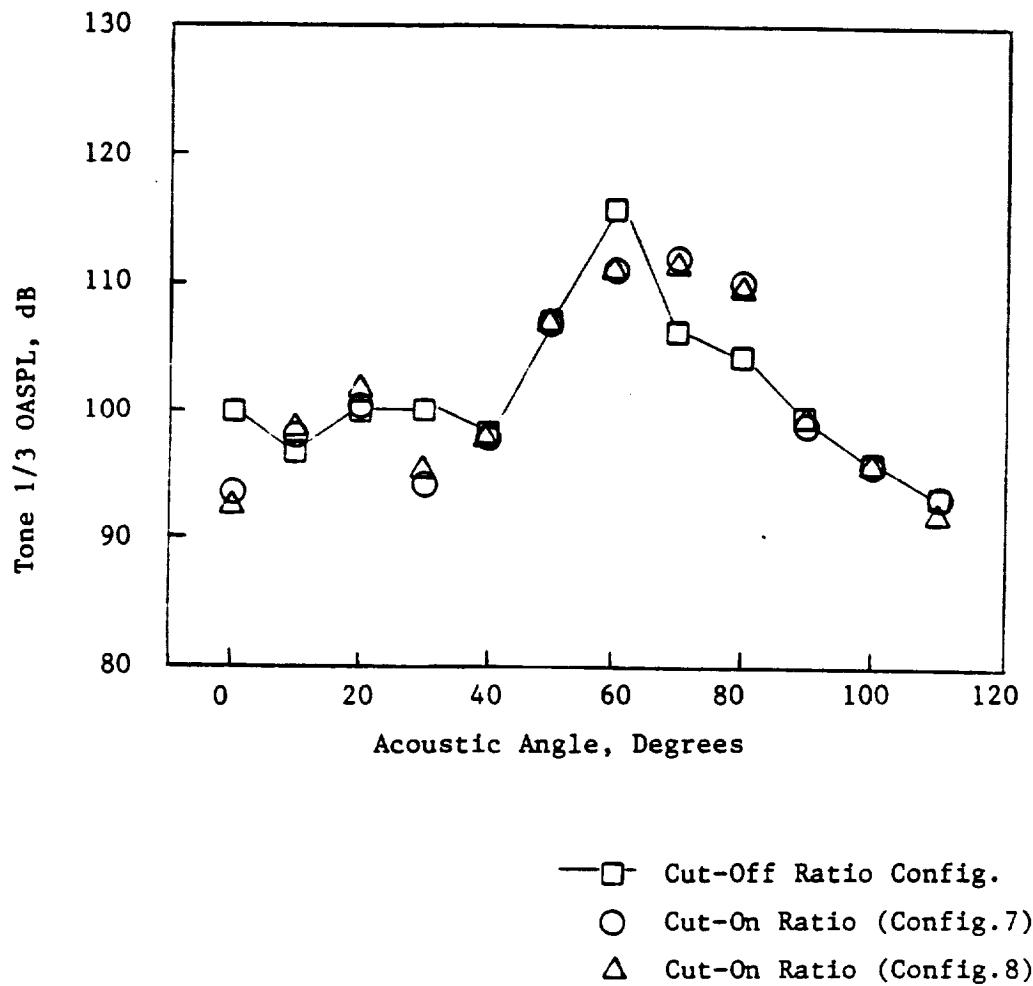


Figure III.3.2 Comparison of BPF Directivities of Cut-Off ( $V/B=1.95$ ) Ratio and Cut-On ( $V/B=1.09$ ) Ratio Configurations with TCS at 74% Fan Speed, DV=1.27



**Figure III.3.3** Comparison of BPF Directivities of Cut-Off ( $V/B=1.95$ ) Ratio and Cut-On ( $V/B=1.09$ ) Ratio Configurations with TCS, at 88% Fan Speed,  $DV=1.27$

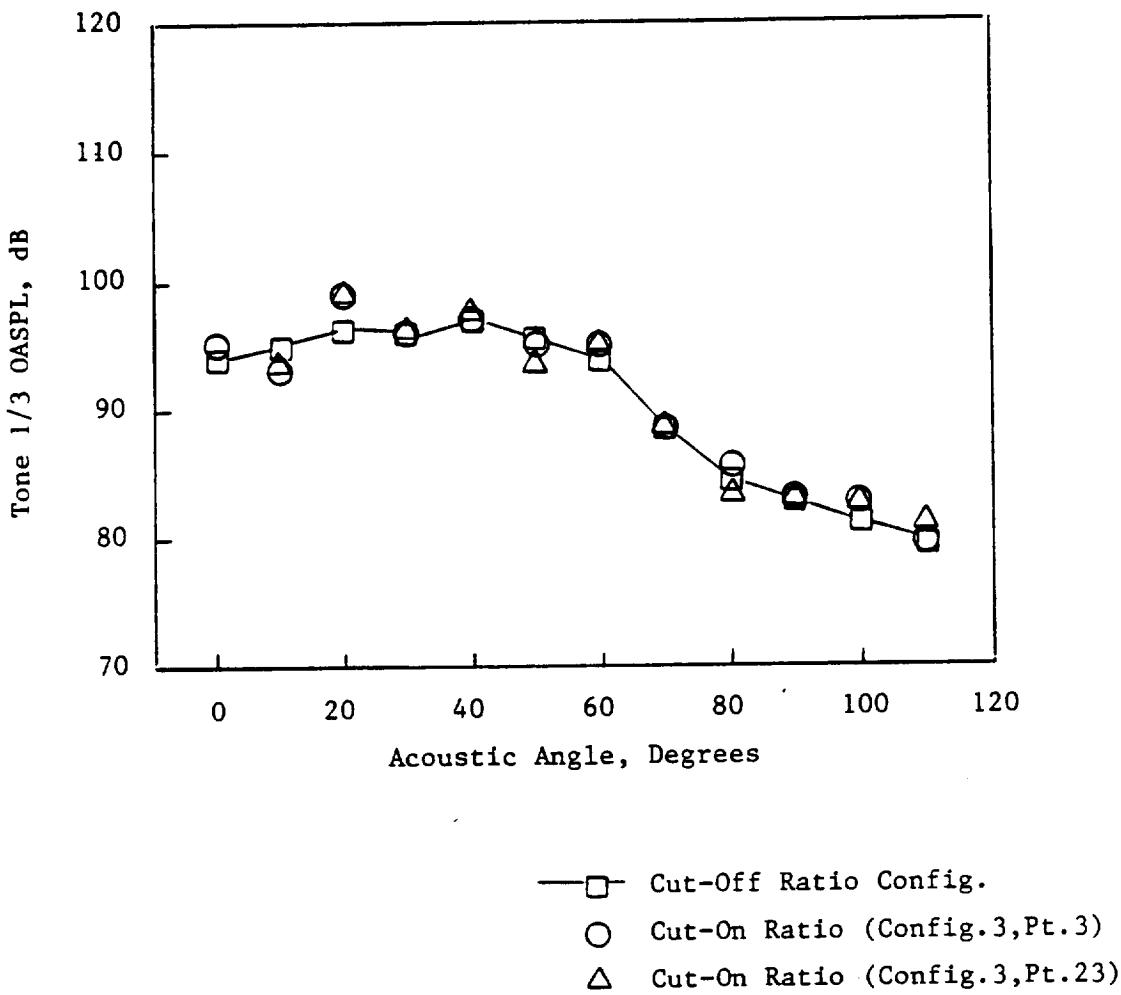


Figure III.3.4 Comparison of BPF Directivities of Cut-Off ( $V/B=1.95$ ) Ratio and Cut-On ( $V/B=1.09$ ) Ratio Configurations without a TCS at 60% Fan Speed,  $DV=1.27$

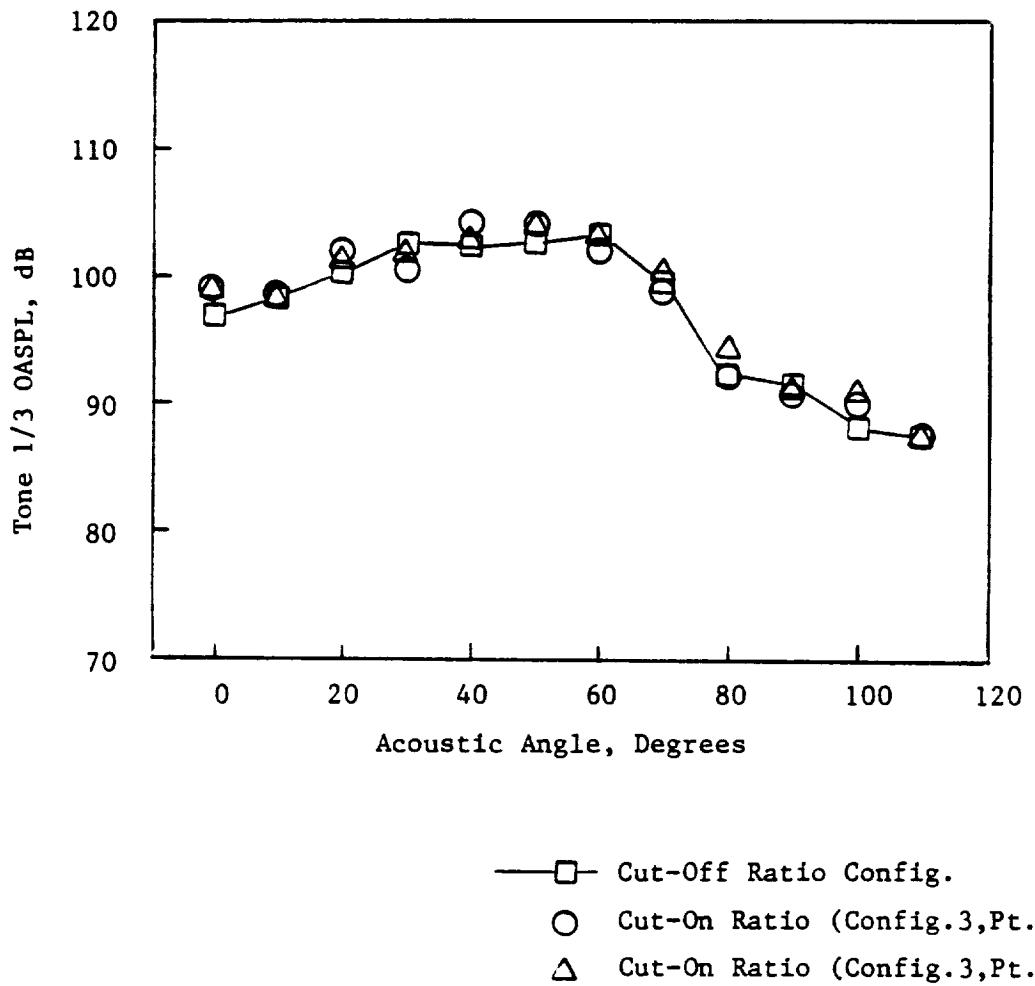


Figure III.3.5 Comparison of BPF Directivities of Cut-Off ( $V/B=1.95$ ) Ratio and Cut-On ( $V/B=1.09$ ) Ratio Configurations without a TCS, at 74% Fan Speed,  $DV=1.27$

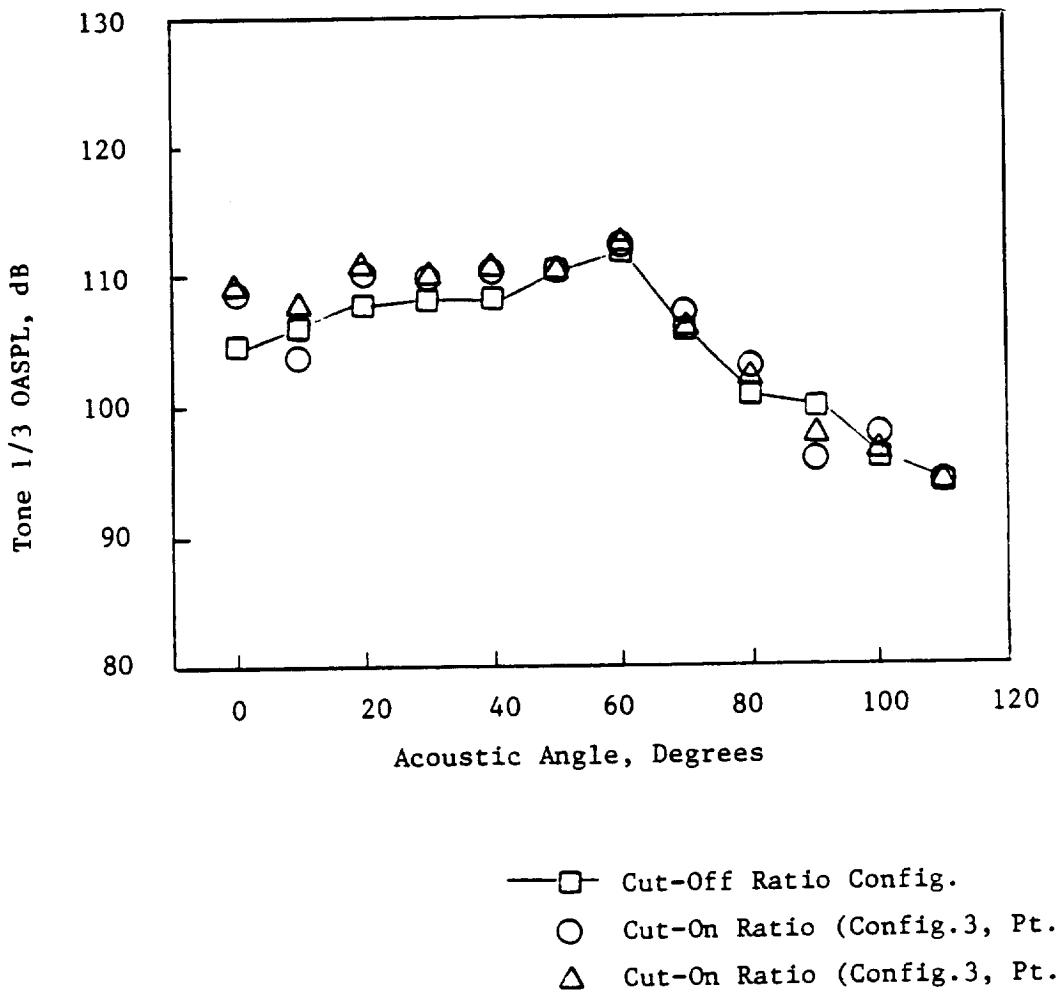


Figure III.3.6 Comparison of BPF Directivities of Cut-Off ( $V/B=1.95$ ) Ratio and Cut-On ( $V/B=1.09$ ) Ratio Configurations without a TCS, at 86% Fan Speed, DV=1.27

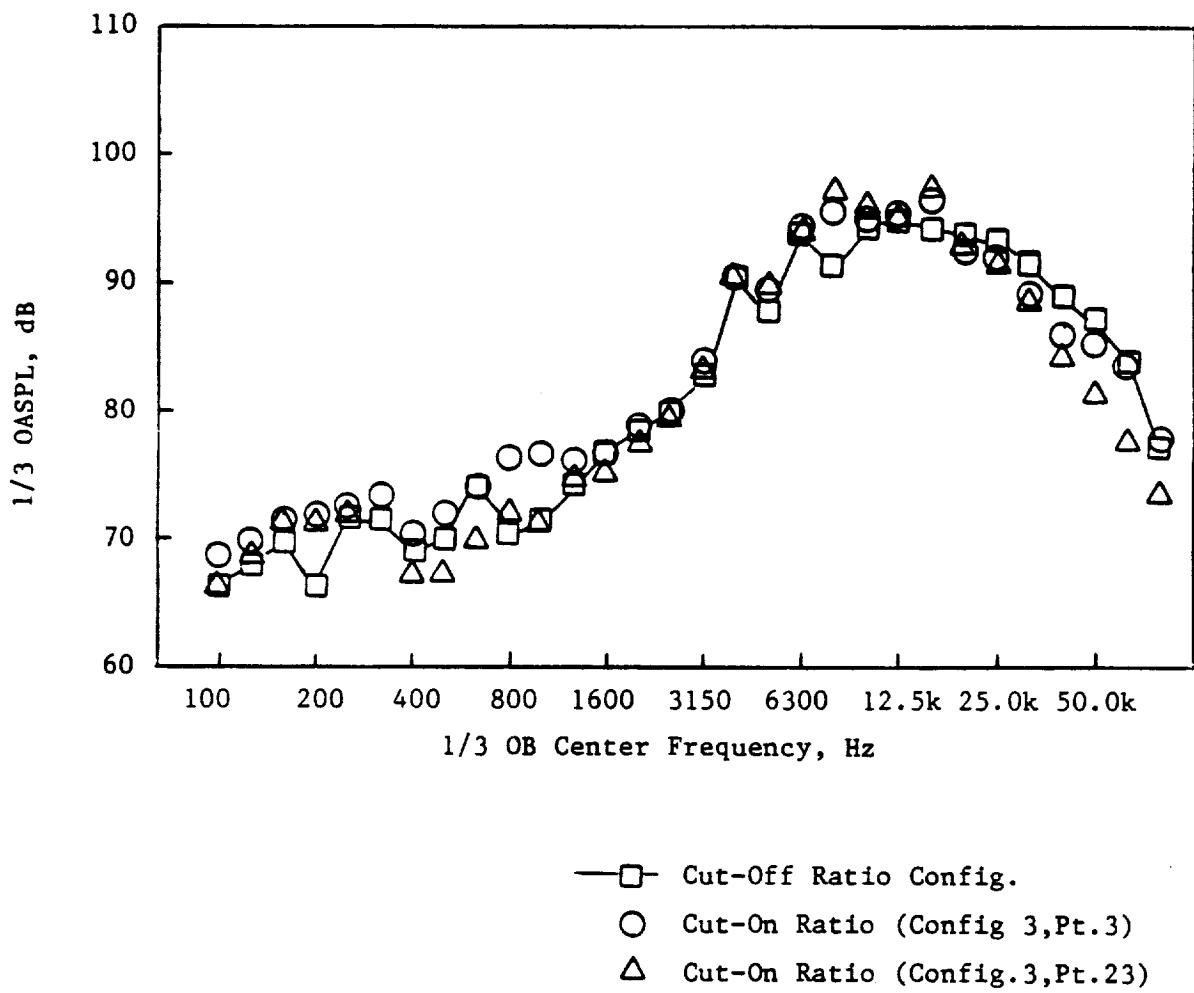


Figure III.3.7     $60^{\circ}$  Spectral Comparison of Cut-Off ( $V/B=1.95$ ) Ratio and Cut-On ( $V/B=1.09$ ) Ratio Configurations Without a TCS, at 60% Fan Speed,  $DV=1.27$

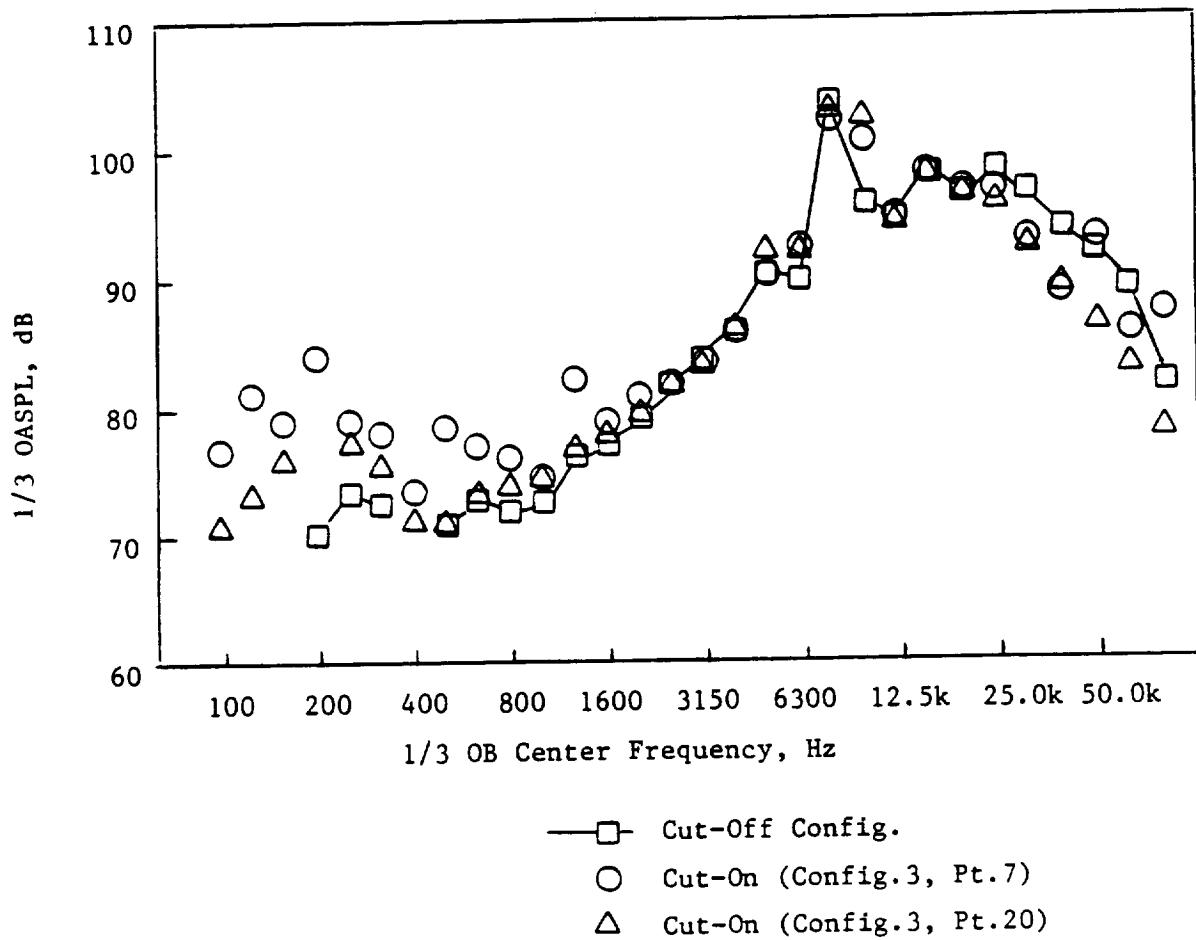


Figure III.3.8     $60^\circ$  Spectral Comparison of Cut-Off ( $V/B=1.95$ ) Ratio and Cut-On ( $V/B=1.09$ ) Ratio Configurations without a TCS, at 74% Fan Speed,  $DV=1.27$

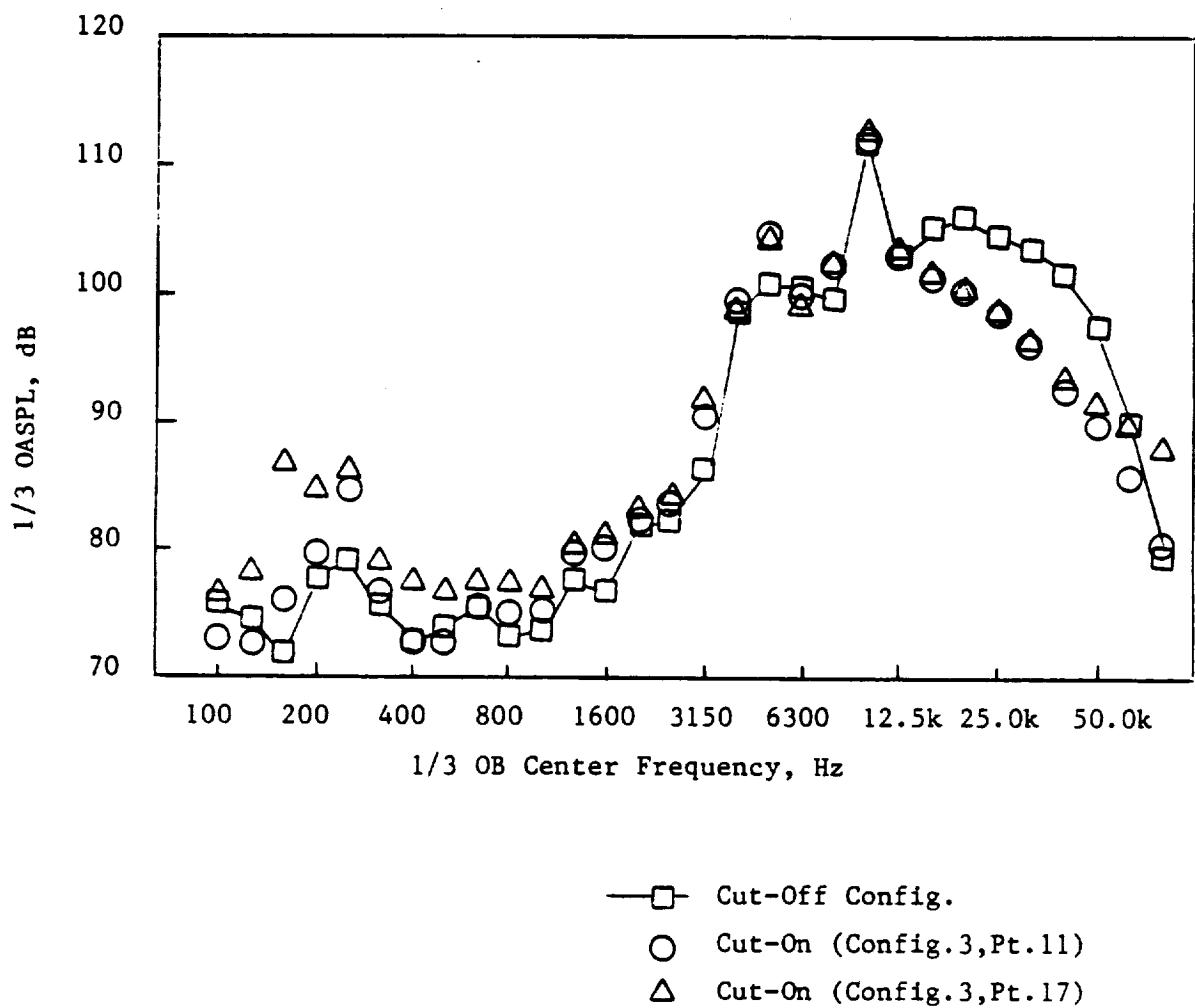


Figure III.3.9  $60^\circ$  Spectral Comparison of Cut-Off ( $V/B=1.95$ ) Ratio and Cut-On ( $V/B=1.09$ ) Ratio Configurations Without a TCS, at 86% Fan Speed,  $DV=1.27$

- 60% N1K
- 6300 Hz BPF
- D.V. = 1.27
- Hardwall Inlet

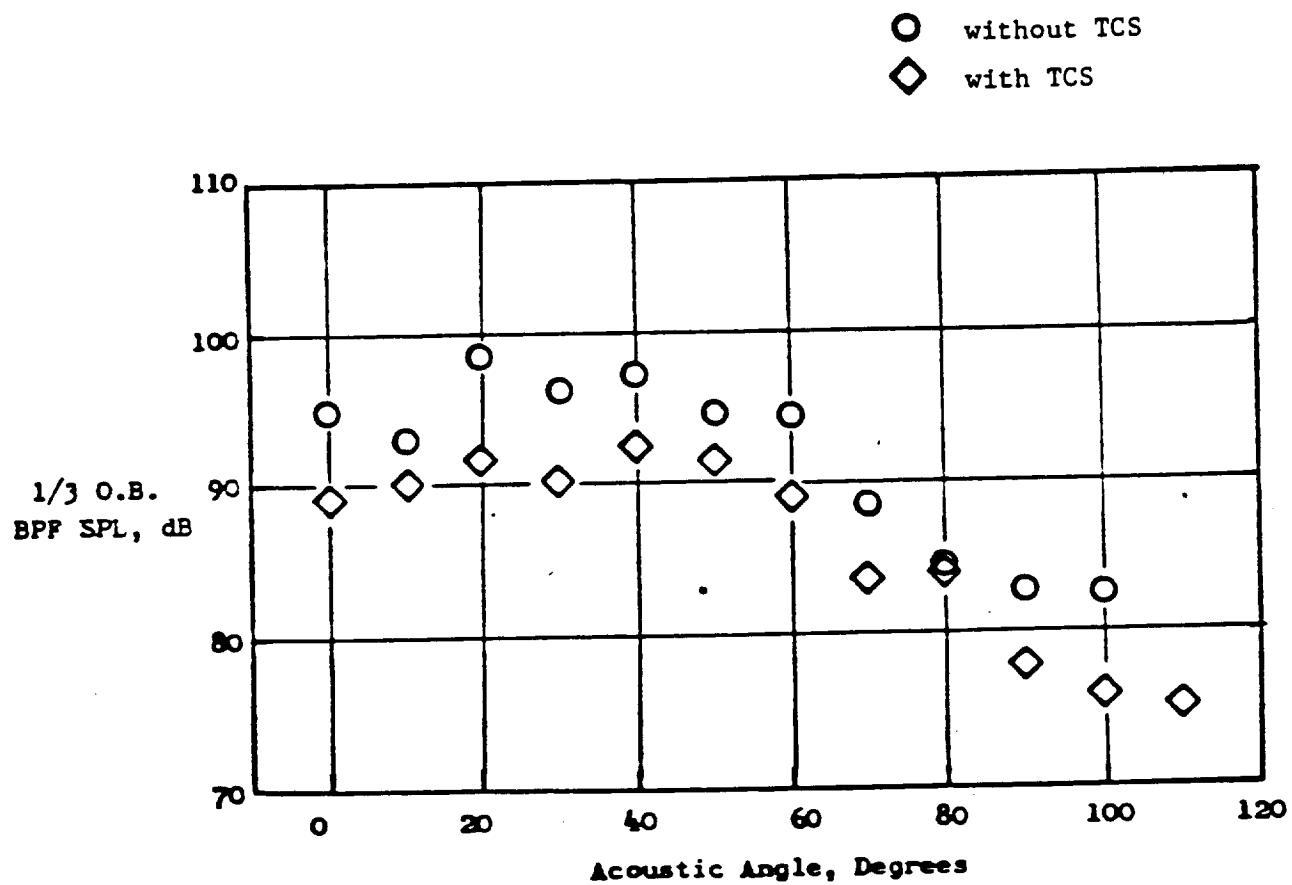


Figure III.3.10 Effect of TCS on Fan Fundamental Tone Directivity

- 74% NIK
- 8000 Hz BPF
- D.V. = 1.27
- Hardwall Inlet

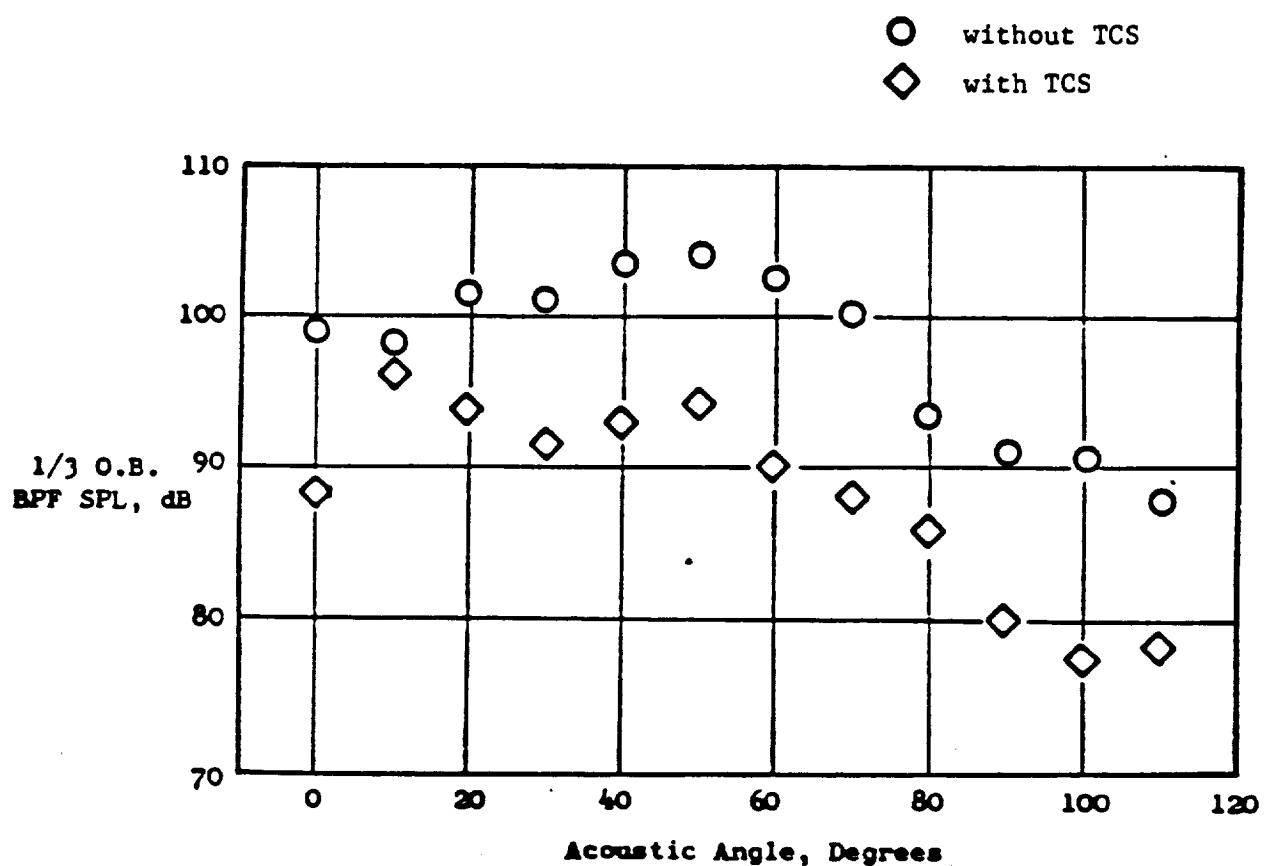


Figure III.3.11 Effect of TCS on Fan Fundamental Tone Directivity

- 86% N1K
- 10000 Hz BPF
- D.V. = 1.27
- Hardwall Inlet

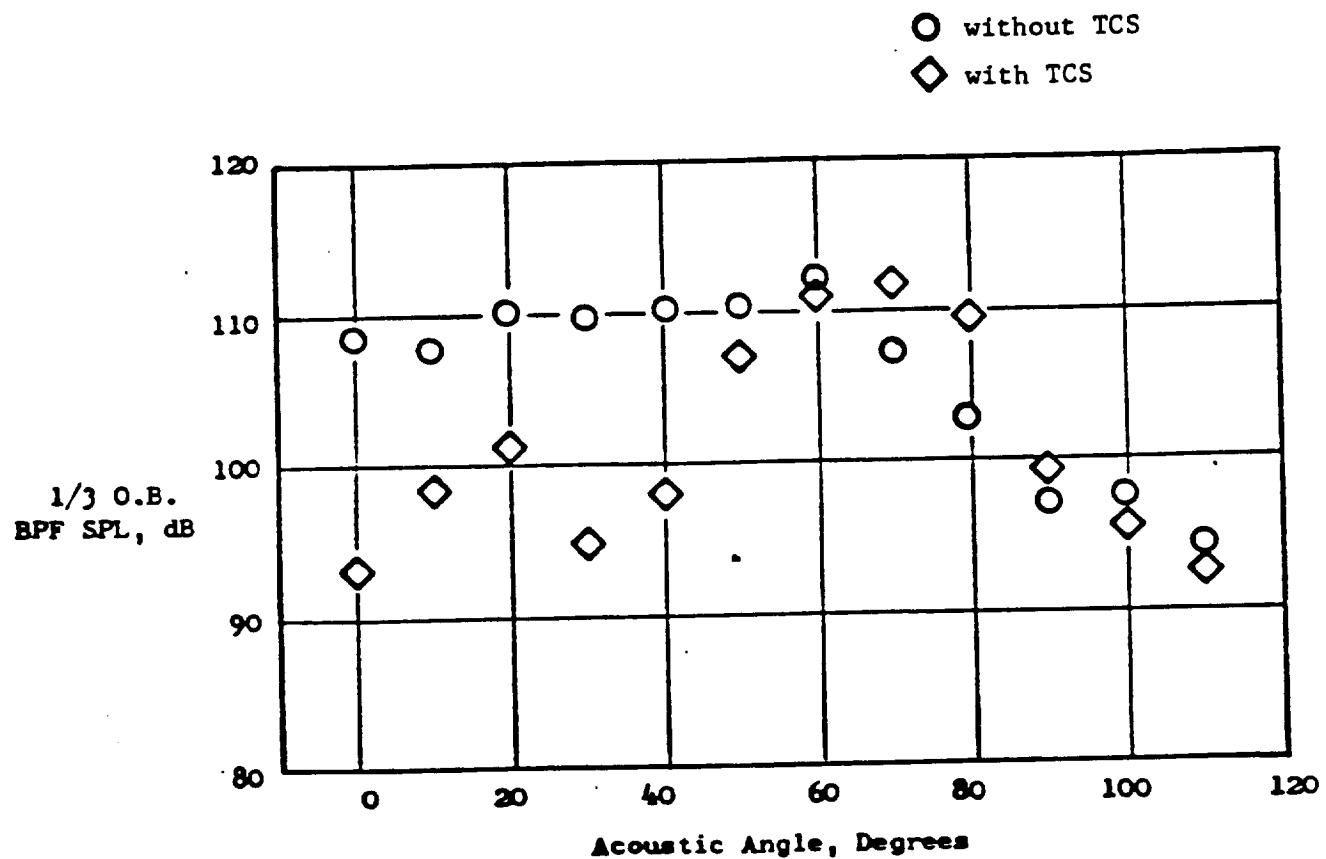


Figure III.3.12 Effect of TCS on Fan Fundamental Tone Directivity

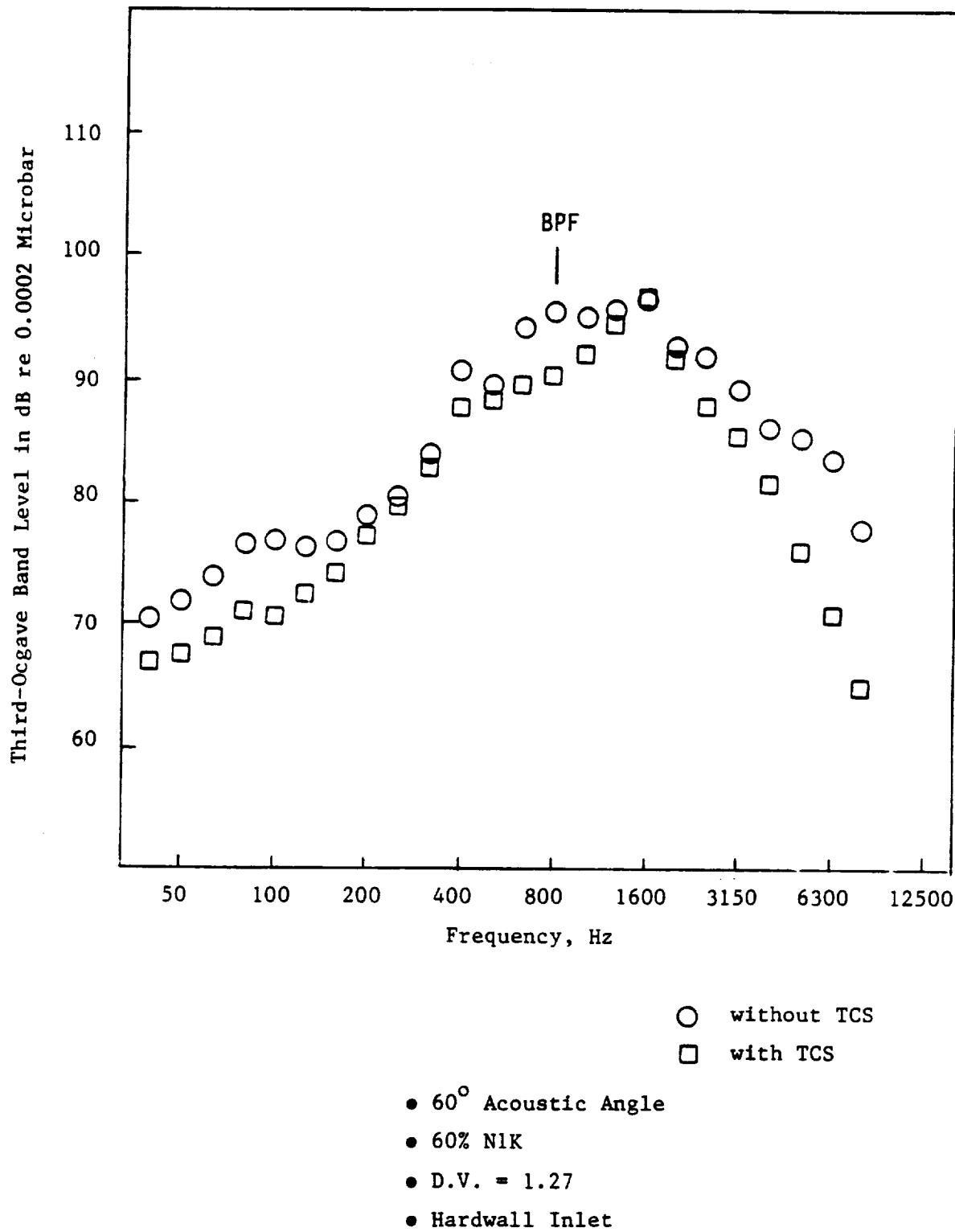


Figure III.3.13 Effect of TCS on Typical Fan Noise Spectrum

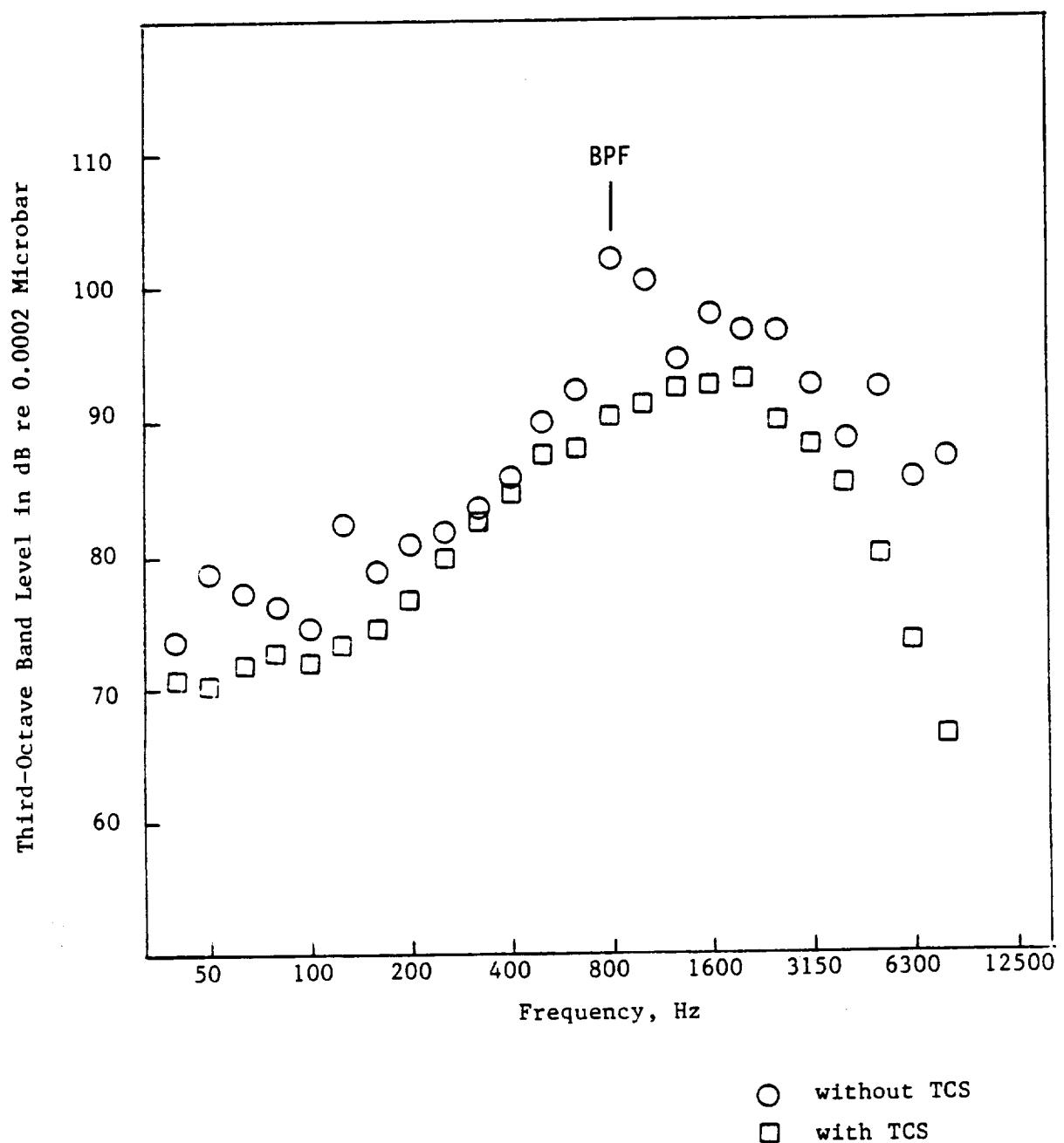


Figure III.3.14 Effect of TCS on Typical Fan Noise Spectrum

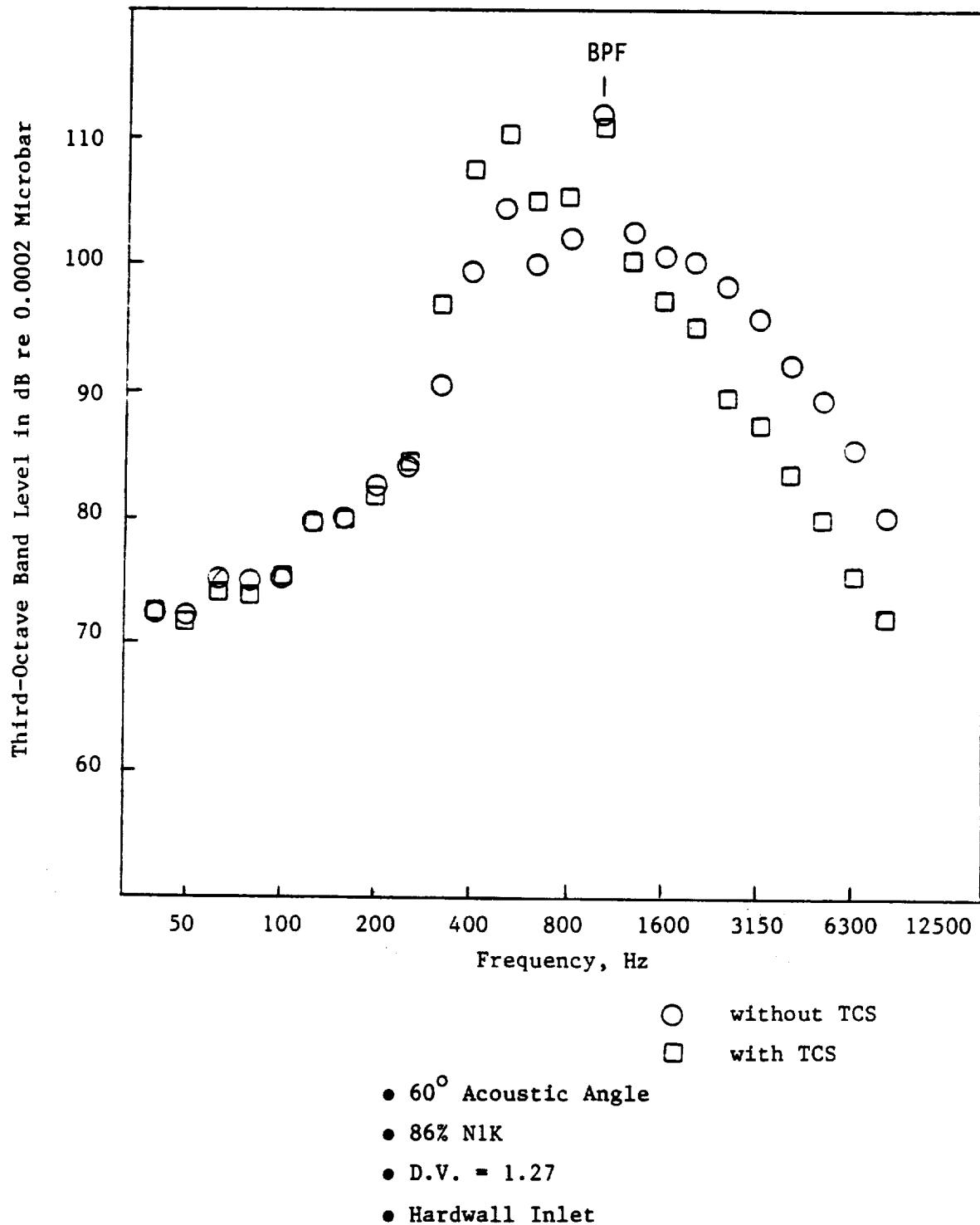


Figure III.3.15 Effect of TCS on Typical Fan Noise Spectrum

Figures III.3.16 to III.3.18 show the PNL directivities obtained from the scale model test without TCS, treated and untreated, scaled up to  $E^3$  ICLS size. This data indicates that forward of  $40^\circ$  the treatment benefit was small. Inspection of the spectra near the inlet axis indicates the treatment had little effect at any frequency, resulting in the small PNL reductions. The probable reason for this is that the treatment is ineffective at suppressing the low order modes which tend to peak in amplitude at these shallow angles.

Figures III.3.19 to III.3.21 show the treated and untreated PNL directivities obtained from the scale model (with a TCS) scaled up to ICLS size. The figures suggest that treatment evaluation without a TCS tends to be slightly more optimistic as compared to evaluation with a TCS.

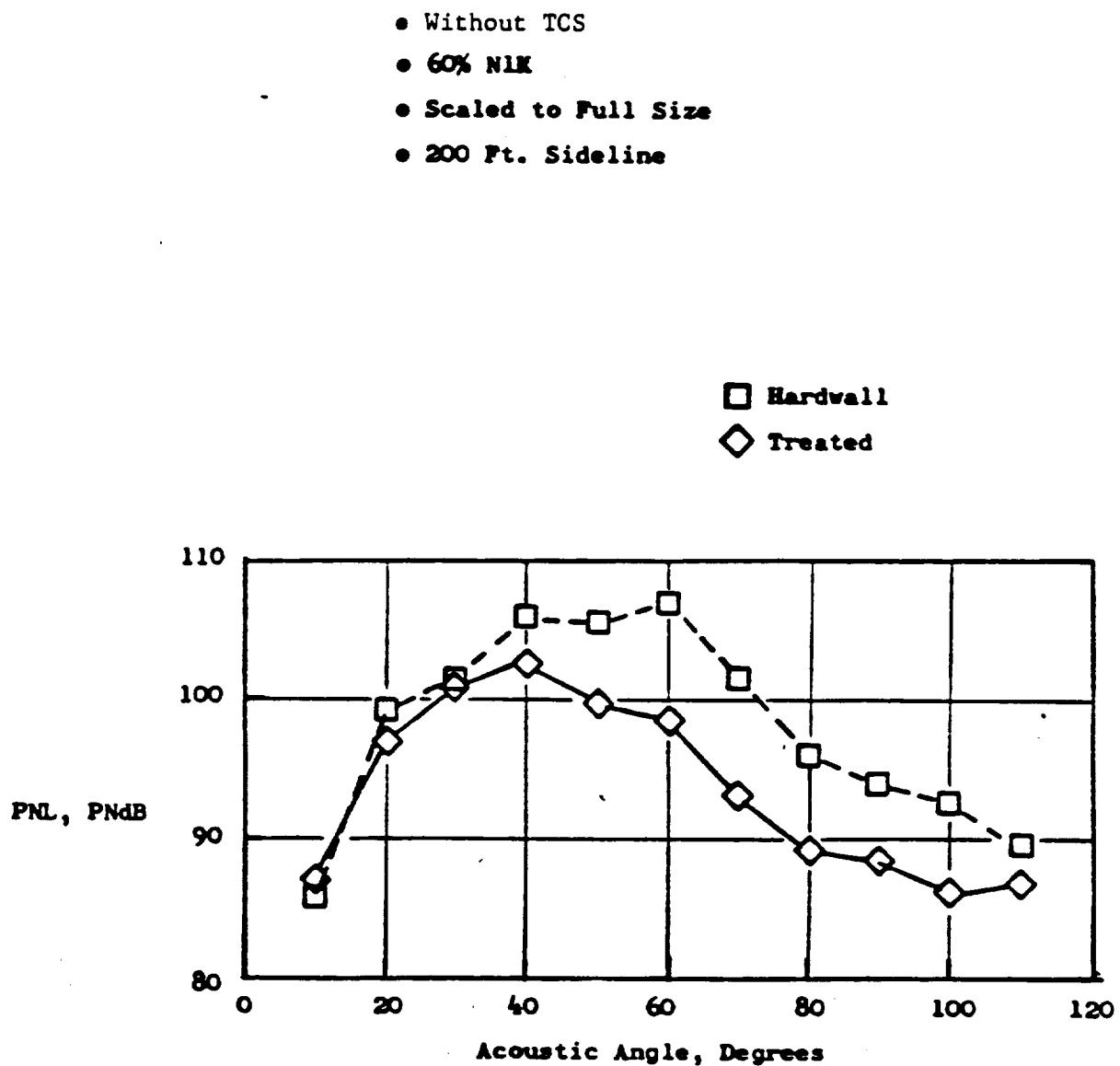


Figure III.3.16 Effect of Inlet Acoustic Treatment on Forward Radiated Fan Noise

- without TCS
- 74% NLK
- Scaled to Full Size
- 200 Ft. Sideline

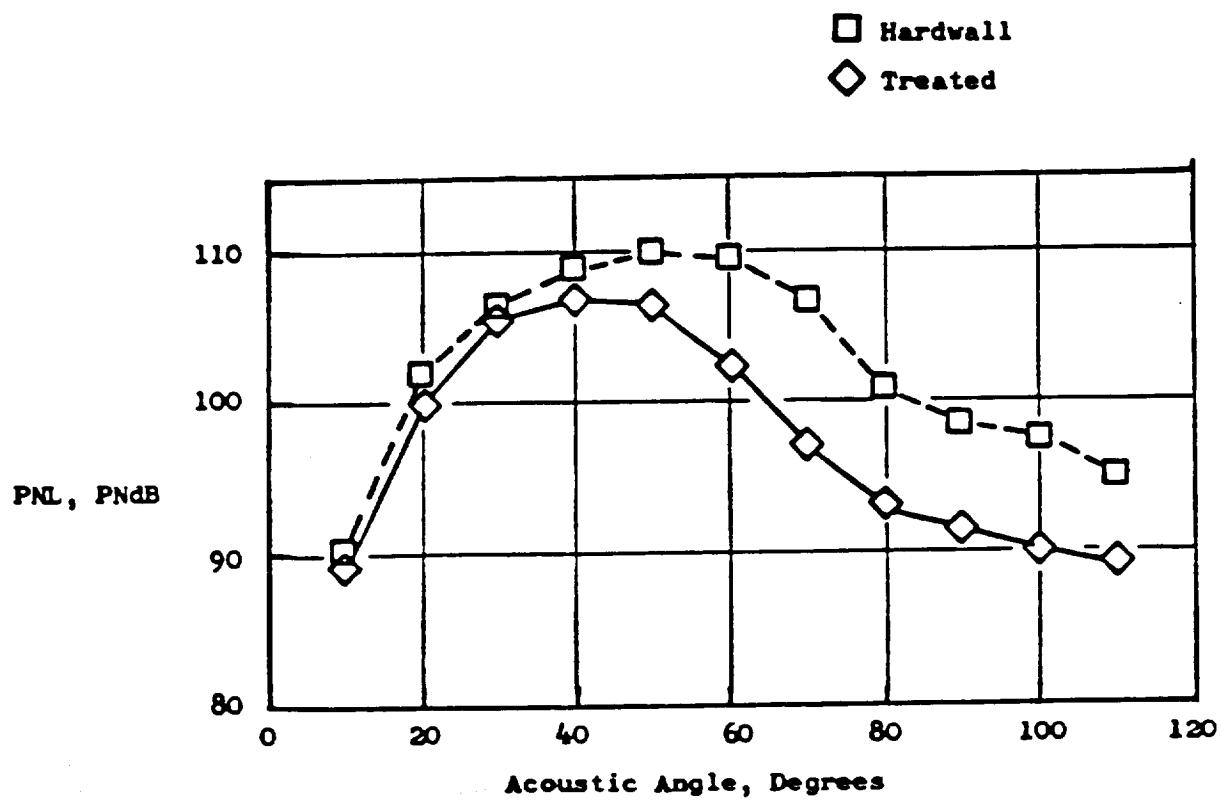


Figure III.3.17 Effect of Inlet Acoustic Treatment on Forward Radiated Fan Noise

- without TCS
- 86% NIK
- Scaled to Full Size
- 200 Ft. Sideline

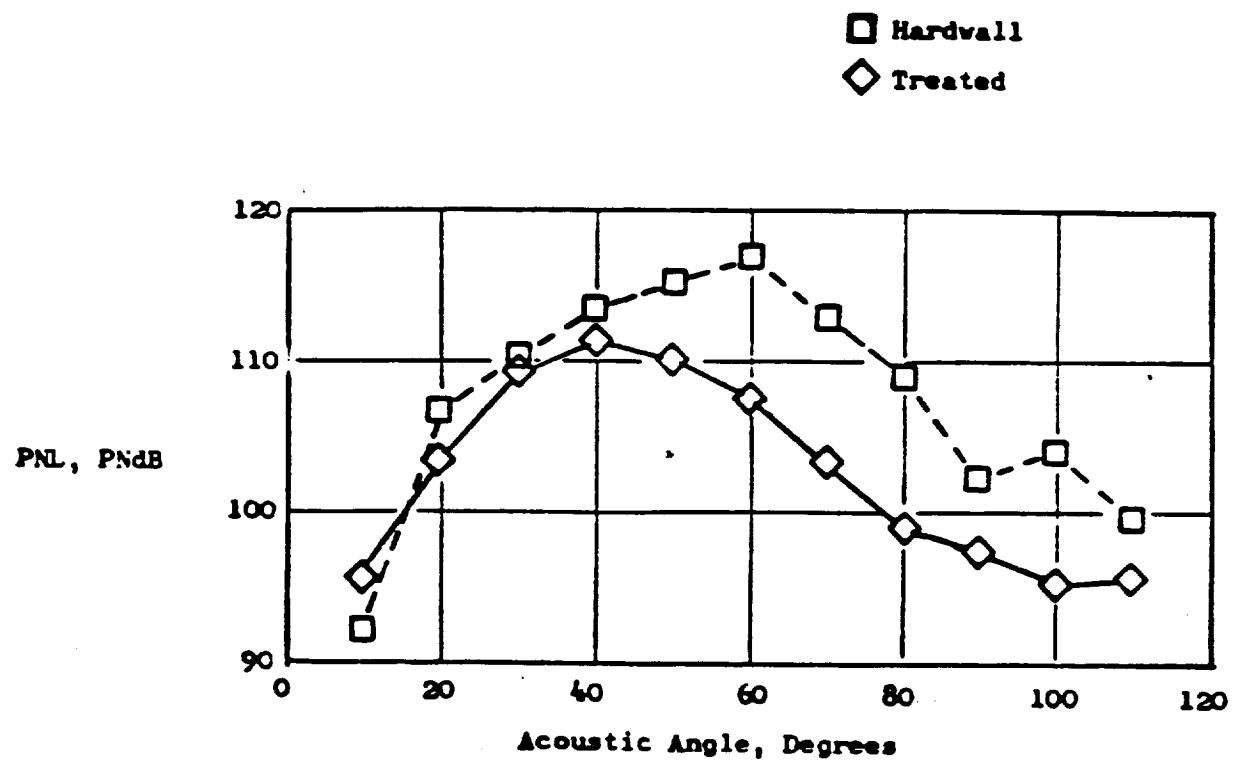


Figure III.3.18 Effect of Inlet Acoustic Treatment on Forward Radiated Fan Noise

- with TCS
- 60% N1K
- Scaled to Full Size
- 200 Ft. Sideline

- Hardwall
- ◇ Treated

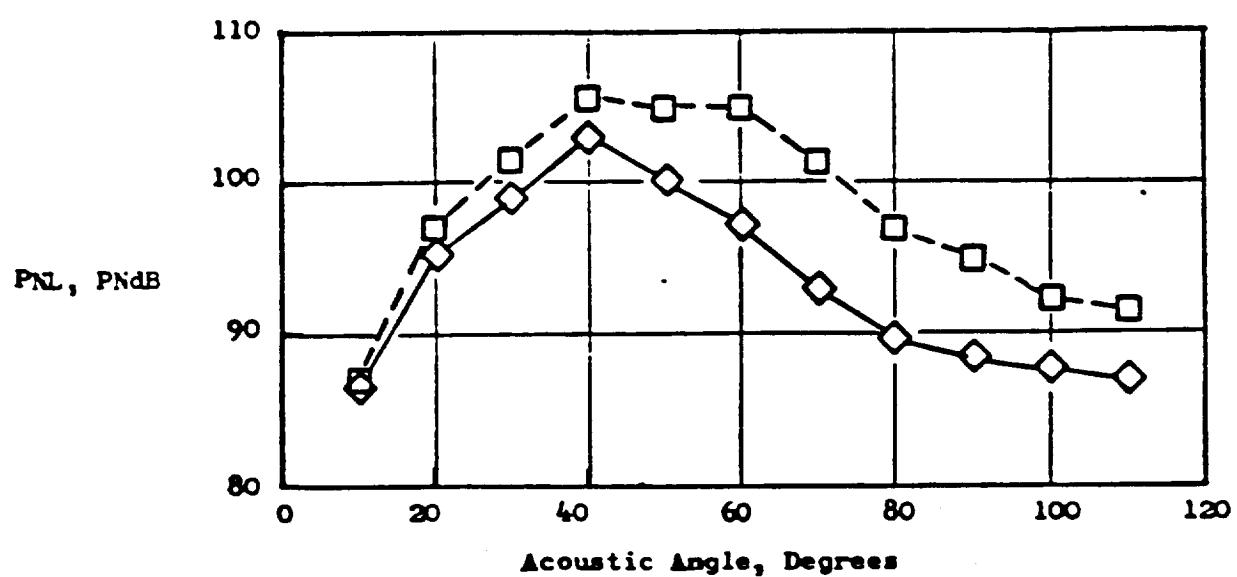


Figure III.3.19 Effect of Inlet Acoustic Treatment on Forward Radiated Fan Noise

- with TCS
- 74% N1K
- Scaled to Full Size
- 200 Ft. Sideline

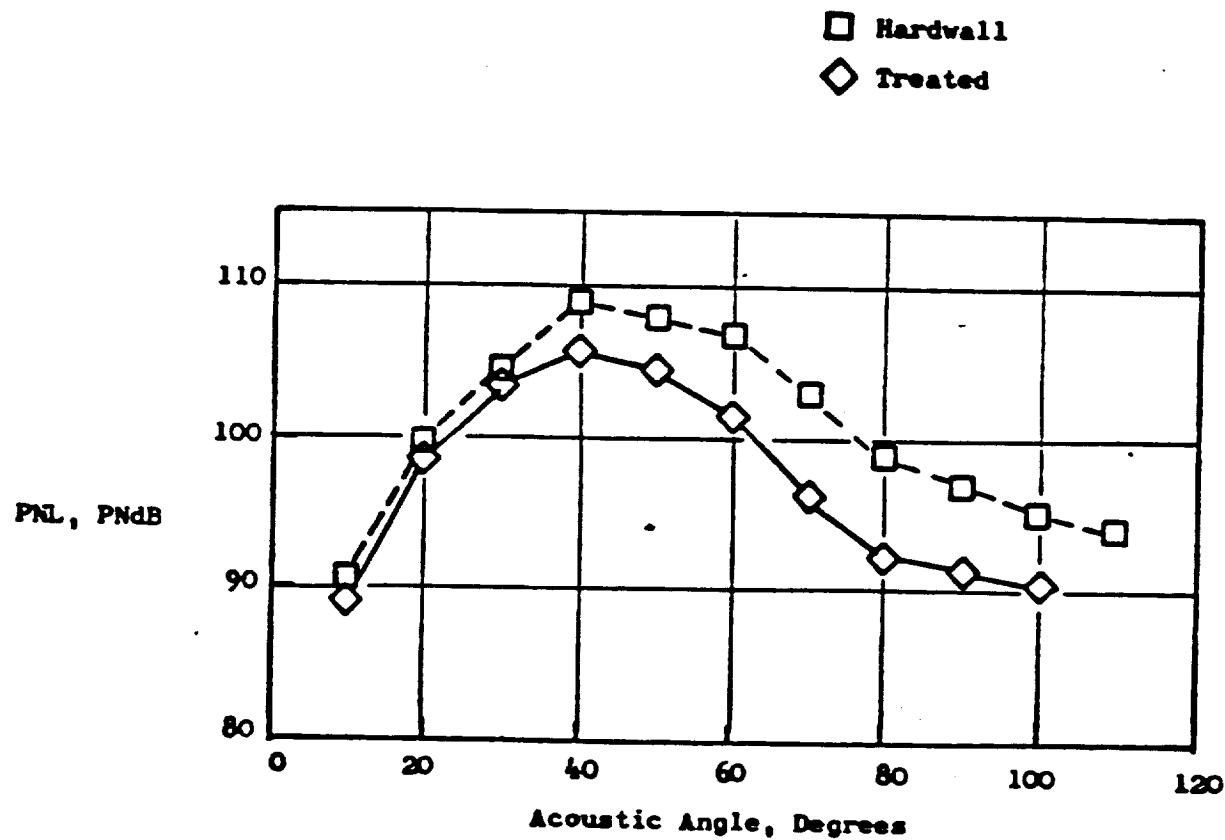


Figure III.3.20 Effect of Inlet Acoustic Treatment on Forward Radiated Fan Noise

- With TCS
- 86% N1K
- Scaled to Full Size
- 200 Ft. Sideline

- Hardwall
- ◇ Treated

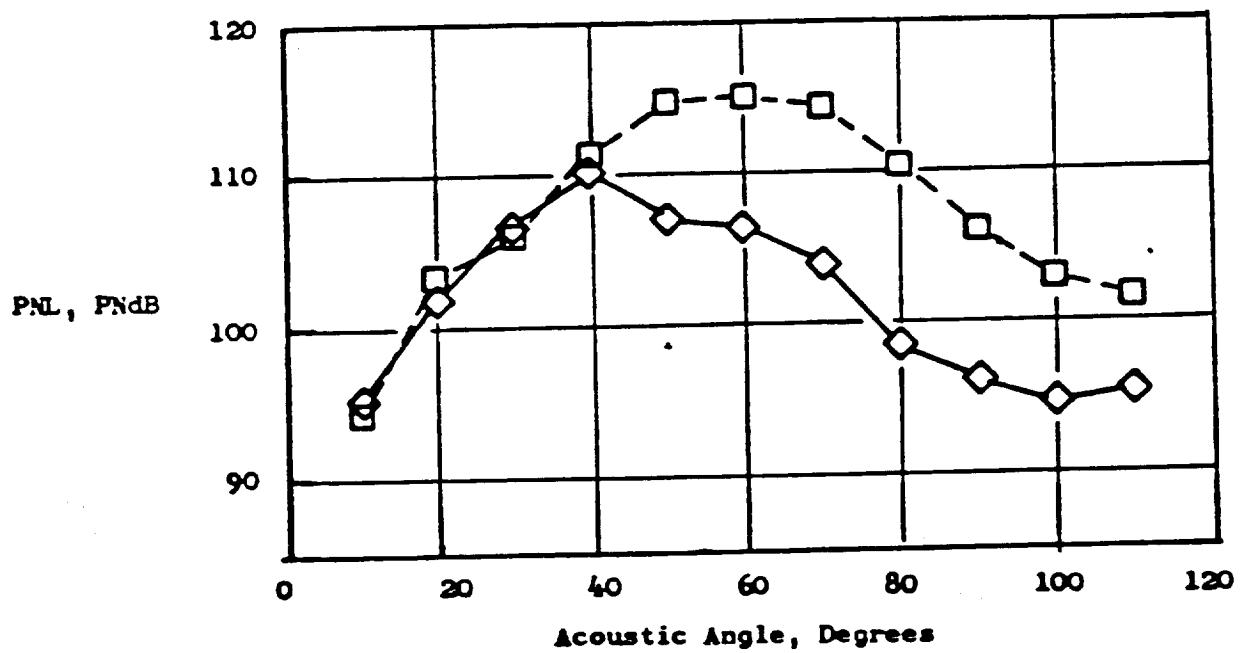


Figure III.3.21 Effect of Inlet Acoustic Treatment on Forward Radiated Fan Noise

## **4.0 MIXER TEST**

In support of the forced mixed flow exhaust system design, acoustic and flow field survey measurements were made on several scale model exhaust systems. The primary objective of these tests was to provide experimental evaluation of the noise reduction potential of high bypass mixer nozzle exhaust systems relative to conventional separate flow nozzles.

### **4.1 TEST FACILITIES**

All mixer acoustic testing was performed at the General Electric Jet Noise Anechoic Chamber located at Evendale, Ohio (shown schematically in Figure IV.1). The chamber is a cylindrical building 21.95 meters (72 ft) high and 13.1 meters (43 ft) in diameter. The chamber's inner surfaces are lined with anechoic wedges made of Owens Fiberglass "Intermediate Service Board." The installation is designed to meet a low frequency cut-off requirement of below 220 Hz and a 0.99 absorption coefficient above 220 Hz.

This facility was certified for acoustic measurements under Task 1 of the DOT/FAA High Velocity Jet Noise Source Location and Reduction Program (Reference 4).

#### **4.1.1 ACOUSTIC INSTRUMENTATION**

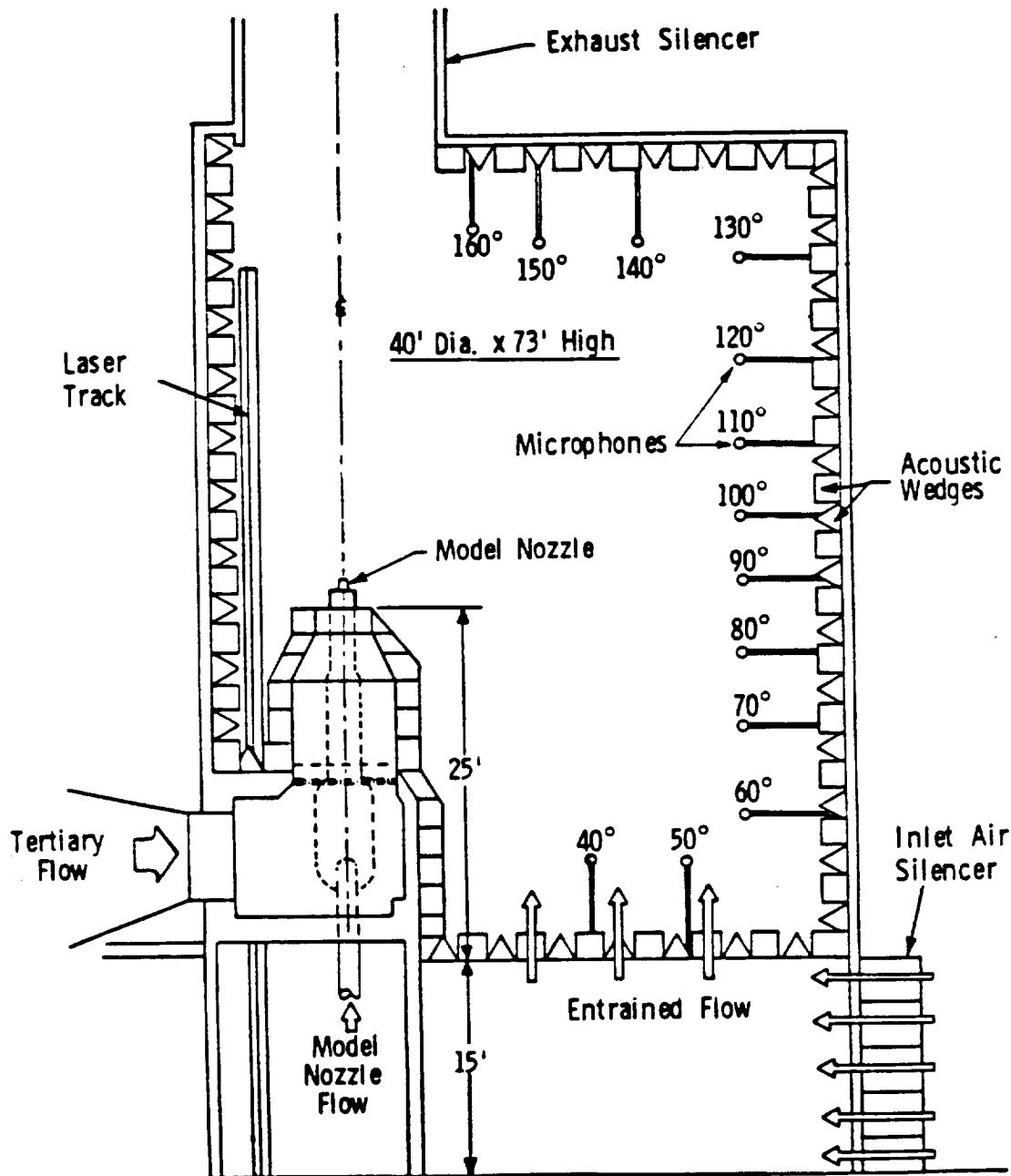
Acoustic measurements were made every 10° in a polar angle measured from the nozzle inlet centerline, from 40° to 160°. The microphones (Brue & Kjaer 0.64 cm (0.25 in) diameter, Model 4135) were placed at various distances from the center of the nozzle exhaust plane along the chamber walls. All microphone data were corrected to a constant 12.2 meters (40 feet) arc distance and to a standard day of 25°C, 70% relative humidity using the methods developed by Shields and Bass, as discussed in Reference 5.

As previously described, all testing was conducted with B&K 4135 microphones. In order to obtain the best frequency response, the microphone grid caps were removed. The microphone signals were preamplified through a

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Figure IV.1

G.E. EVENDALE JET NOISE ANECHOIC CHAMBER



transistorized cathode follower, B&K type 2619, powered by a B&K type 2801 power supply to increase the signal strength over the inherent noise floor of the cabling. The signal was further amplified by a line driver, adding 10 dB gain to the signal, as well as adding an additional 3 dB at 40 KHz and 6 dB at 80 KHz "pre-emphasis," increasing the ability to measure low amplitude, high frequency data.

The tape recorder amplifiers had a variable gain from -10 dB to +60 dB in 10 dB steps and were used for normalizing incoming signals to the optimum dynamic range of the tape recorder. The prime system used for recording acoustic data is a Sangamo Sabre IV, 28 track FM recorder. The system was set up for Wideband Group I (intermediate band double extended) at 120 ips tape speed. The tape recorder was set up for ±40% carrier deviation with a recording level of 8 volts peak-to-peak.

All 1/3 octave analyses were performed on a General Radio 1921 1/3-octave analyzer. Integration time was set for 32 seconds to insure high statistical confidence of the low frequency content. The analyzer has 40 one-third octave filter bands ranging from 12.5 Hz to 100 KHz, and has a rated statistical accuracy ( $1\sigma$ ) for the region of interest (i.e., 200 Hz to 100 KHz) of ± 1/4 dB in each band.

The digitized 1/3-octave levels are passed through an interface computer from the analyzer and stored on the General Electric Aircraft Engine Group's Honeywell 6000 computer for further processing. Post processing includes correction for microphone and amplifier system response (including de-emphasis) and correction for test day atmospheric conditions.

#### 4.1.2 AERODYNAMIC DATA ACQUISITION

The flow parameters associated with the three flows in the anechoic chamber (core, fan, and tertiary) are measured using type k thermocouples for temperature and standard transducers for pressure. Flow rates were determined in two ways. One method used upstream pressure and measured change in pressure across an orifice. The other method used total pressure at the nozzles and effective area to calculate the flows.

A laser doppler velocimeter (LDV) was used for two nozzle configurations to measure the mean and RMS turbulent velocities in the plume of different jet streams. The description of the LDV system is given in Reference 6.

#### 4.2 TEST PROCEDURE

Acoustic data were obtained for the seven configurations listed in Table IV.2.1 at several combinations of fan, core, and tertiary stream velocities, pressures and temperatures, corresponding to typical FPS engine operating line conditions between approach and takeoff thrust. The fan stream was maintained at ambient temperature, while the core stream was heated to between 717°K (1290°R) and 856°K (1540°R), depending on the power setting (Table IV.2.2). Simulated flight conditions were tested with the free jet operating at free stream Mach numbers of  $M_\infty = 0, 0.15$ , and  $0.3$ .

The configurations tested were designed for a 12% scale model geometric simulation of the exhaust system flowpath, including the fan duct, turbine rear frame, core flow duct, mixer, centerbody, and exhaust nozzle. Reference 7 reports the results of aerodynamic performance characteristics measured on these same scale model configurations.

LDV measurements of nozzle axial mean velocity ( $\bar{u}$ ) and axial component of turbulence velocity ( $u'$ ) were made on four nozzle configurations: 3C, 4S, confluent, and separate-flow. Mixer 3C was selected because it was found to be the noisiest of the mixers. Mixer 4S was selected because it had noise characteristics about the same as the other lobed mixers and had good aerodynamic performance as well. It also had the same lobe number as mixer 3C (18). The conical nozzle and separate flow configurations were selected as baselines for comparison with the mixer results.

A sketch of the nozzle exit plane measurement location grid used in surveying the exit profiles for the mixer nozzles is shown in Figure IV.2.1.

TABLE IV.2.1

ACOUSTIC NOZZLE CONFIGURATIONS

Configuration	Lobe	Scalloped	Cutback	Perimeter P/L	Penetration $H_L/H_{MP}$	Description
2S	12	Yes	No	7.9	0.39	Medium Penetration
4S	18	Yes	No	10.9	0.39	Medium Penetration
6	24	No	No	13.9	0.39	Medium Penetration
3C	18	No	Yes	10.9	0.39	Large Penetration, Cutback to Medium Penetration
Separate Flow	N/A	N/A	N/A	N/A	N/A	Conventional
Confluent Flow	N/A	N/A	N/A	N/A	N/A	Free Mixer
Conic Flow	N/A	N/A	N/A	N/A	N/A	Baseline

TABLE IV.2.2  
E<sup>3</sup> MIXER ACOUSTIC TEST MATRIX

Dual Flow Models							Conical Nozzle			Tertiary Flow Conditions		
Fan Stream				Core Stream			$P_T(2)$ (PSIA)	$T_T$ (°R)	$V_f$ (ft/sec)	$M_0 =$ 0.00	$M_0 =$ 0.15	$M_0 =$ 0.30
PT. No.	$P_T(1)$ (PSIA)	$T_T$ (°R)	$V_f$ (ft/sec)	$P_T(2)$ (PSIA)	$T_T$ (°R)	$V_f$ (ft/sec)						
1	19.01	Amb.	685	17.97	1290	930	17.72	700	650	X	X	
2	19.86	"	740	18.69	1335	1035	18.73	"	750	X	X	
3	20.72	"	785	19.45	1380	1135	19.39	"	800	X	X	X
4	22.63	"	875	21.22	1465	1330	20.13	"	850	X <sup>(3)</sup>	X	X <sup>(3)</sup>
5	22.63	"	875	20.11	1380	1200	20.97	"	900	X	X	X
6	22.63	"	875	22.82	1465	1450	21.86	"	950	X	X	X
7	21.71	"	835	21.22	1465	1330	22.90	"	1000	X	X	X
8	24.88	"	960	21.55	1415	1330	24.04	"	1050	X	X	X
9	24.72	"	955	24.91	1540	1615	25.32	"	1100	X	X	X
10	26.12	"	1000	22.93	1455	1450	26.77	"	1150	X	X	X
11	27.47	"	1040	24.90	1515	1600	27.06	750	1200	X	X	X
12	Amb.	Amb.	0	Amb.	Amb.	0	Amb.	Amb.	0	X	X	X

- Notes:
- (1)  $P_T$  set such that ideal expanded velocity is achieved depending on temperature of air supply on day of test and ambient atmospheric pressure.
  - (2) Approximate values;  $P_T$  set such that specified  $T_T$  and ideal expanded velocity are achieved depending on ambient atmospheric pressure.
  - (3) Laser velocimeter data taken at these conditions on two models.

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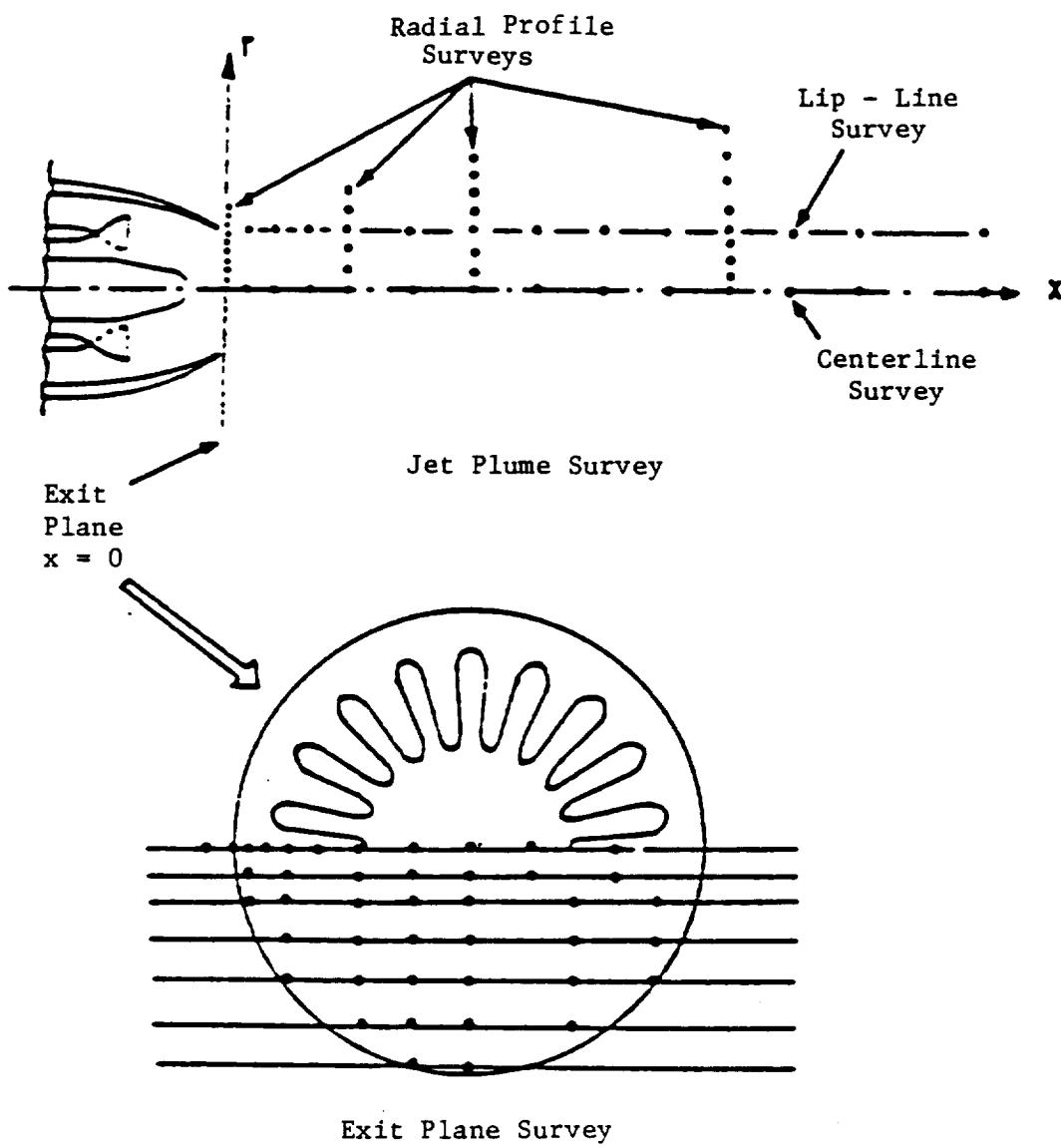


Figure IV.2.1 Typical Jet Plume and Nozzle Exit Plane LDV Survey Data Grid Point Matrix

#### 4.3 TEST RESULTS

##### 4.3.1 STATIC ACOUSTIC CHARACTERISTICS

The measured static ( $M_0 = 0$ ) acoustic data of all seven configurations are compared on a PNL basis in Figure IV.3.1, for a typical takeoff point as normalized for variations in size and test conditions:

$$PNL_n = PNL_m - 10 \log \left( \frac{F_n}{F_{ref}} \right)$$

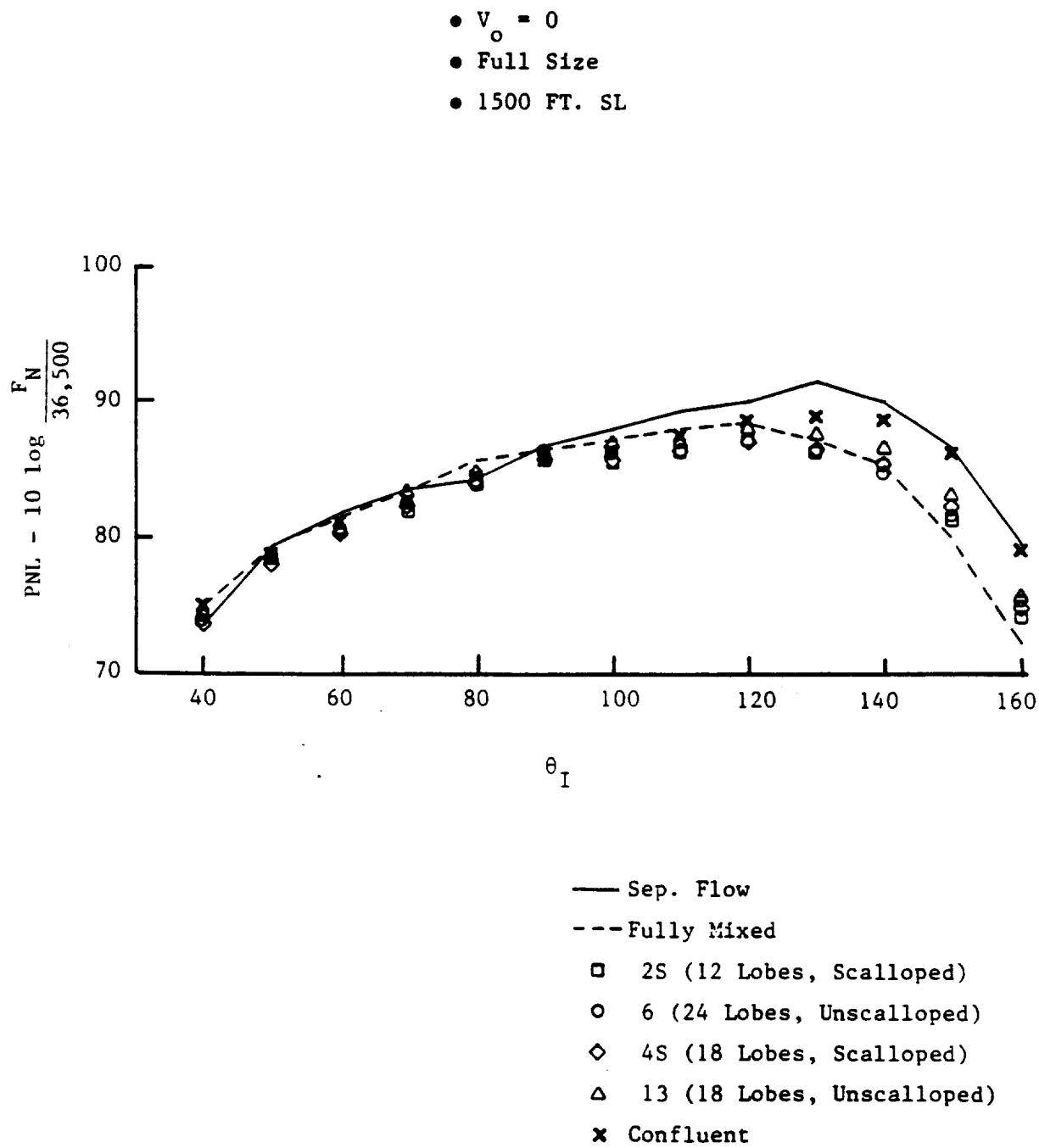
where:  $PNL_n$  = Normalized Perceived Noise Level  
 $PNL_m$  = Measured Perceived Noise Level  
 $F_n$  = Measured Thrust  
 $F_{ref}$  = Reference Thrust

The PNL characteristics are seen to be about the same for all configurations in the forward quadrant (i.e.,  $40^\circ$  to  $90^\circ$ ). In the aft quadrant, the conic nozzle is seen to be lowest in level, while the separate-flow nozzle is the highest, 3 to 4 PNdB higher than the conic nozzle.

All the mixer configurations fall between these two extremes. The confluent mixer is only slightly quieter than the separate-flow configuration, while all of the forced mixers are 2 to 3 PNdB quieter than the separate-flow configuration.

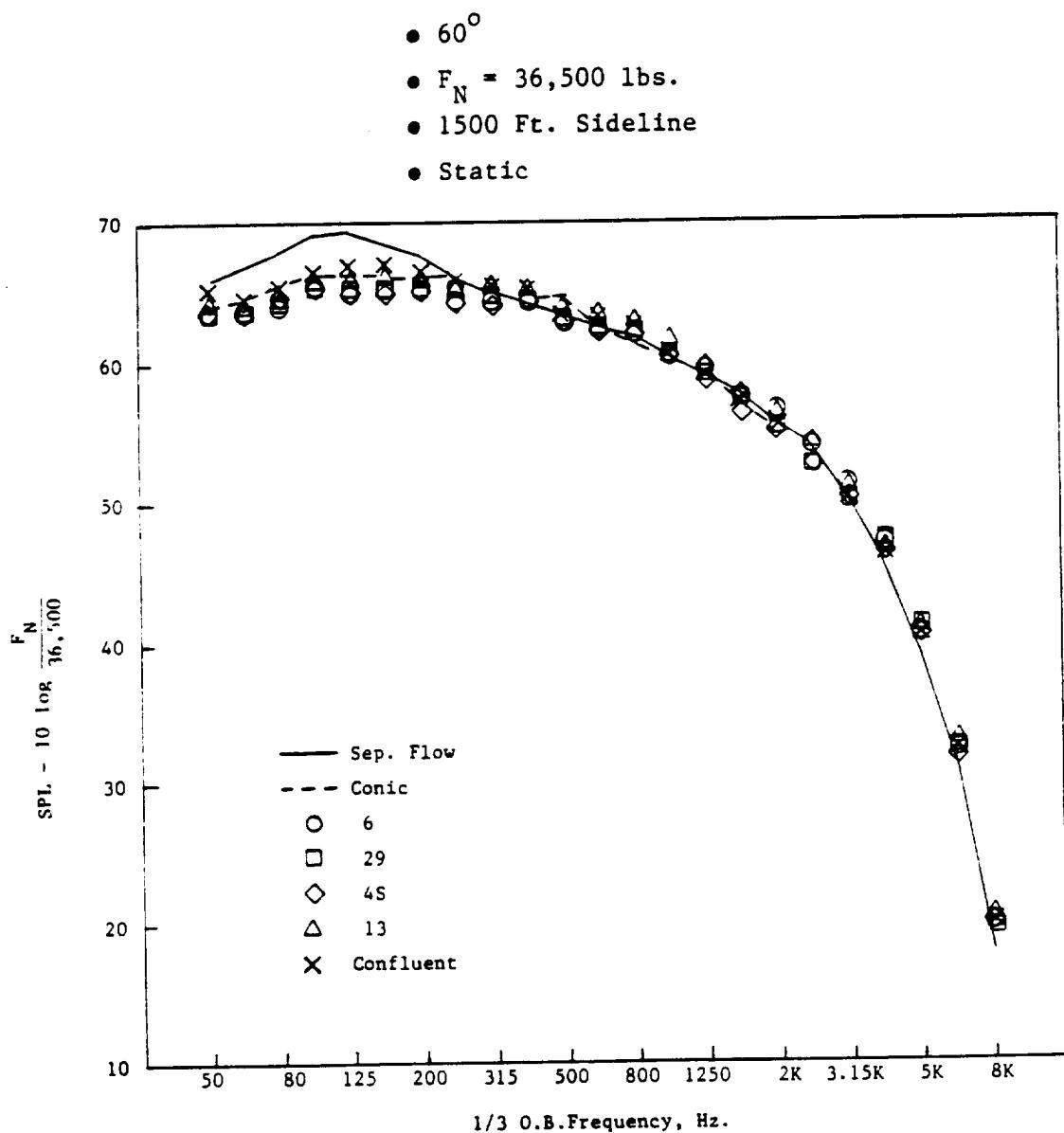
Comparisons of a typical forward quadrant 1/3-octave spectrum at takeoff conditions are shown in Figure IV.3.2. The spectral levels are virtually the same for all configurations, except for low frequencies. In the low frequency range (i.e., below 200 Hz of the full scale transformed data), the separate flow configuration has the highest levels (approximately 2 to 3 dB higher), while the lobe mixers are 1 to 2 dB lower than the conical nozzle.

Figure IV.3.1 Comparison of Measured PNL Directivity Characteristics under Static Conditions



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Figure IV.3.2 Comparison of Measured Forward-Arc Spectra  
Under Static Conditions



Similar trends for the low frequencies are observed for typical aft quadrant 1/3-octave spectral comparisons (Figure IV.3.3). Here, the separate flow configuration is 2 to 4 dB higher than the conic and 3 to 5 dB higher than the lobed configurations.

#### 4.3.2 SIMULATED FLIGHT ACOUSTIC CHARACTERISTICS

The measured simulated flight acoustic data ( $M_\infty = .15, .3$ ) of all seven configurations were compared on a normalized PNL basis (Figures IV.3.4 and IV.3.5). These comparisons consistently showed the separate-flow and configuration 3C to be the noisiest, the conic to be the quietest, with the other lobed mixers in between. Differences were more accentuated between configurations under simulated flight conditions than they were statically.

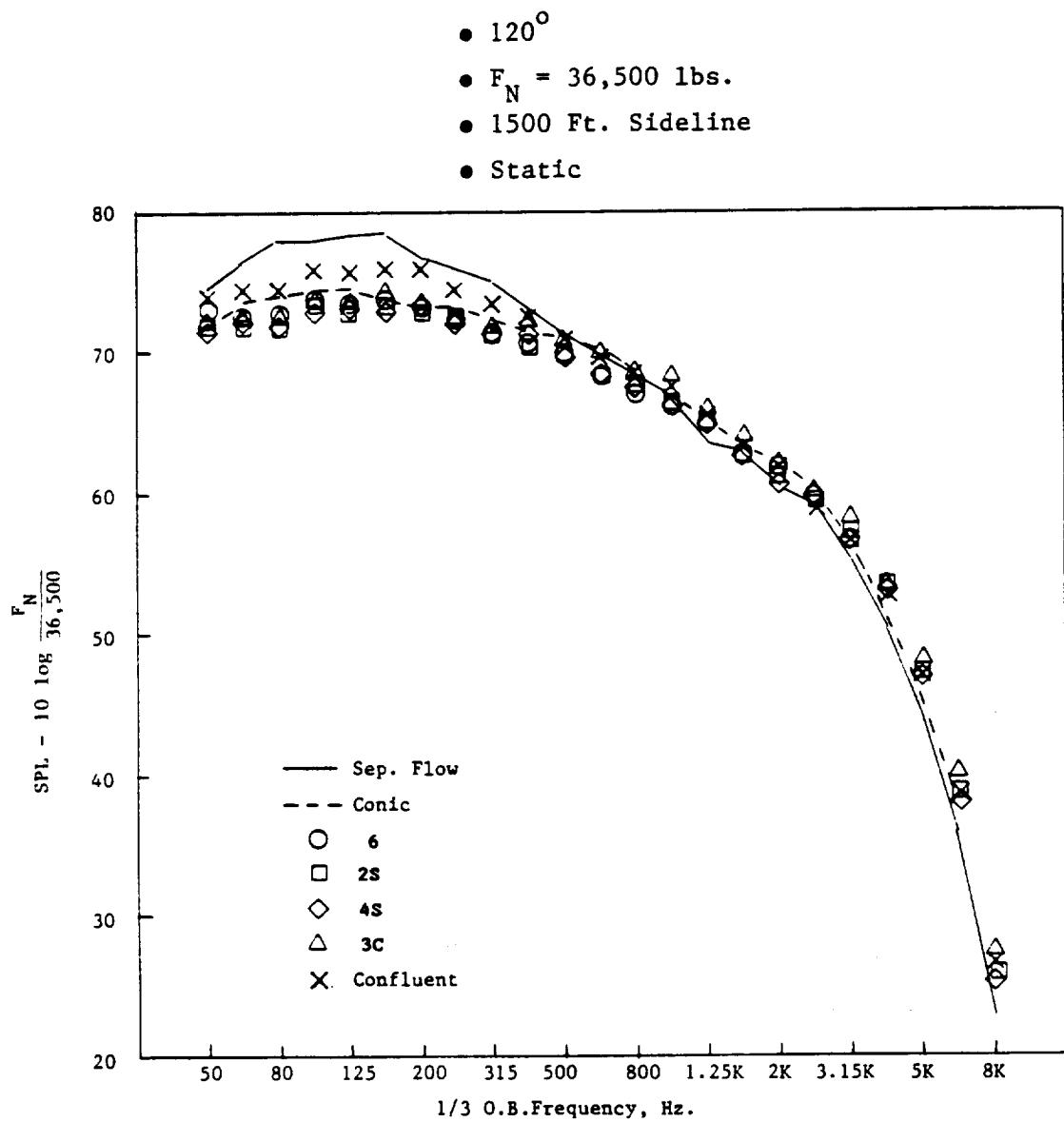
Corresponding typical flight spectra are shown in Figures IV.3.6 to IV.3.9. Again, much larger differences are observed between the various configurations than was observed in the static case. At  $60^\circ$ , the low frequency differences are similar to those observed for  $M_\infty = 0$ , but the high frequency portion of the spectrum changes considerably from one configuration to another. The conical and separate-flow configurations show the lowest levels while the 3C mixer levels are the highest. The confluent mixer has the lowest high frequency noise of all the mixers, while mixers 2S and 6 fall in between. The  $120^\circ$  spectra show similar trends with the 3C mixer again being the highest.

Another comparison which can be obtained with static and flight data is the derivation of flight effects. As discussed in K.W. Bushell's paper (see Reference 8), flight levels can be correlated to static levels according to the following relationship:

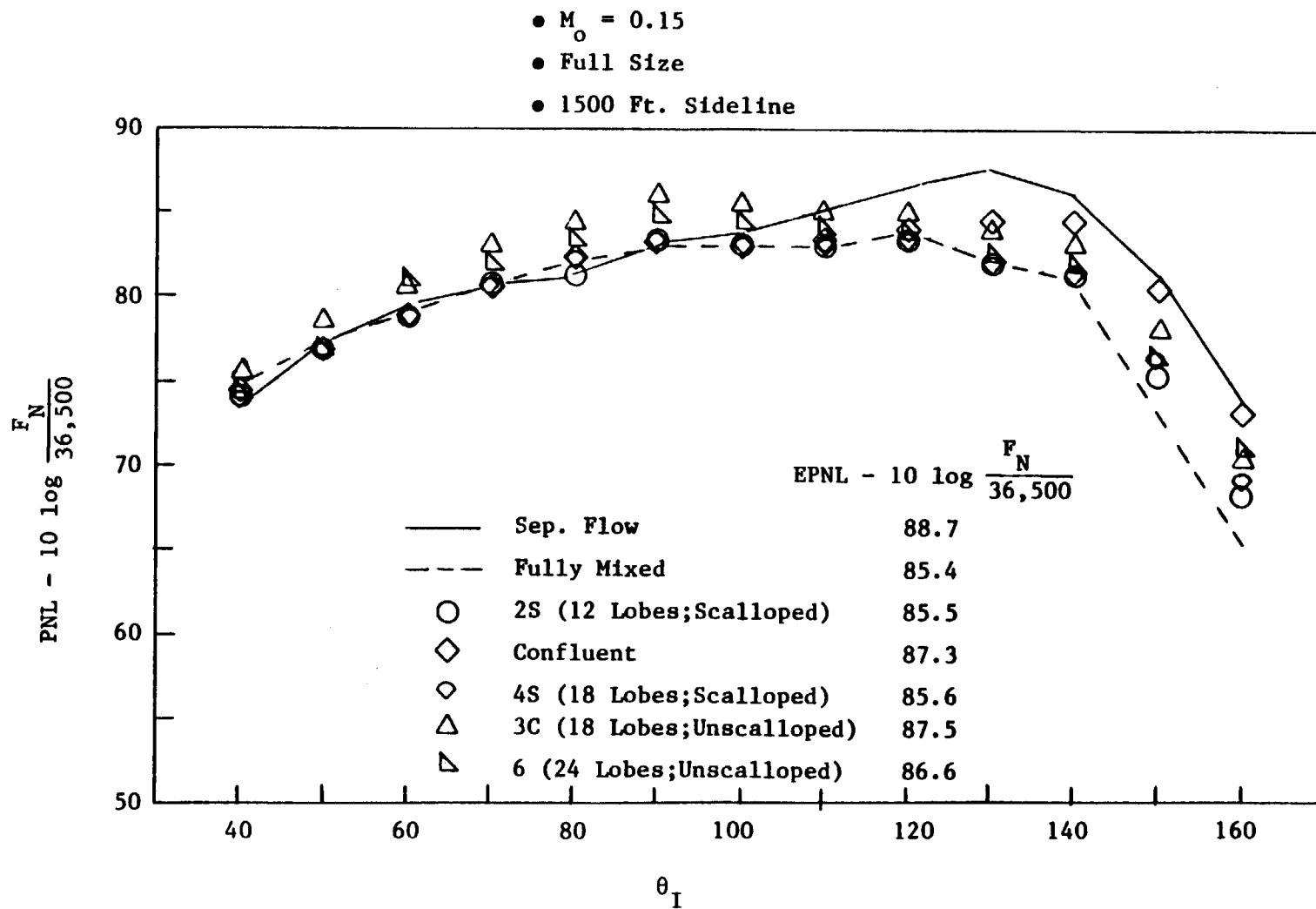
$$SPL_{\text{static}} - SPL_{\text{flight}} = 10 \log \left[ \left( \frac{V_i}{V_r} \right)^m * (1 - M_a \cos \Theta) \right]$$

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Figure IV.3.3 Comparison of Measured Aft Arc Spectra  
Under Static Conditions



**Figure IV.3.4 Comparison of Measured PNL Directivity Characteristics Under Simulated Flight Conditions**



**Figure IV.3.5 Comparison of Measured PNL Directivity Characteristics  
Under Simulated Flight Conditions**

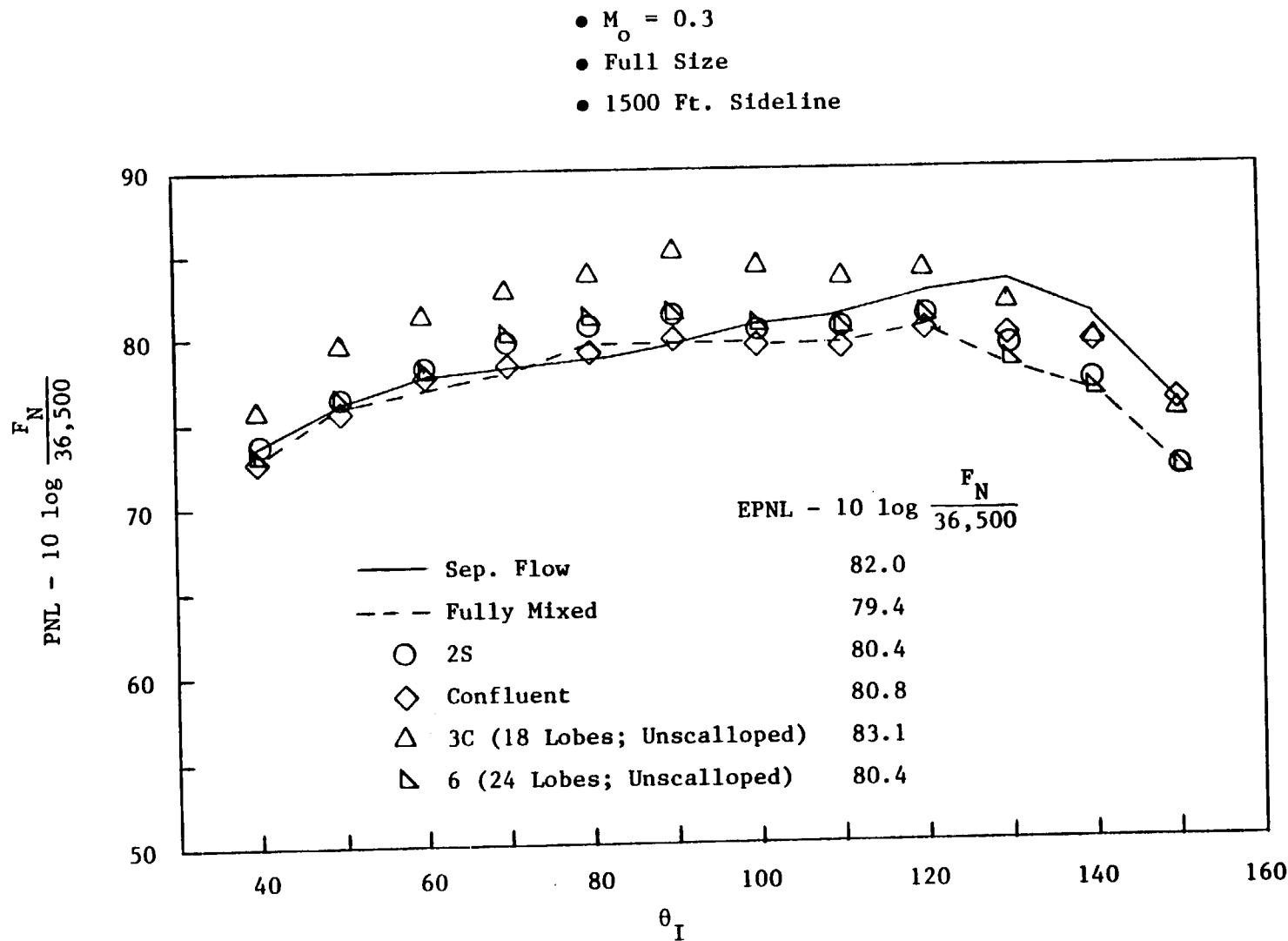


Figure IV.3.6 Comparison of Measured Forward-Arc Spectra Under Simulated Flight Conditions

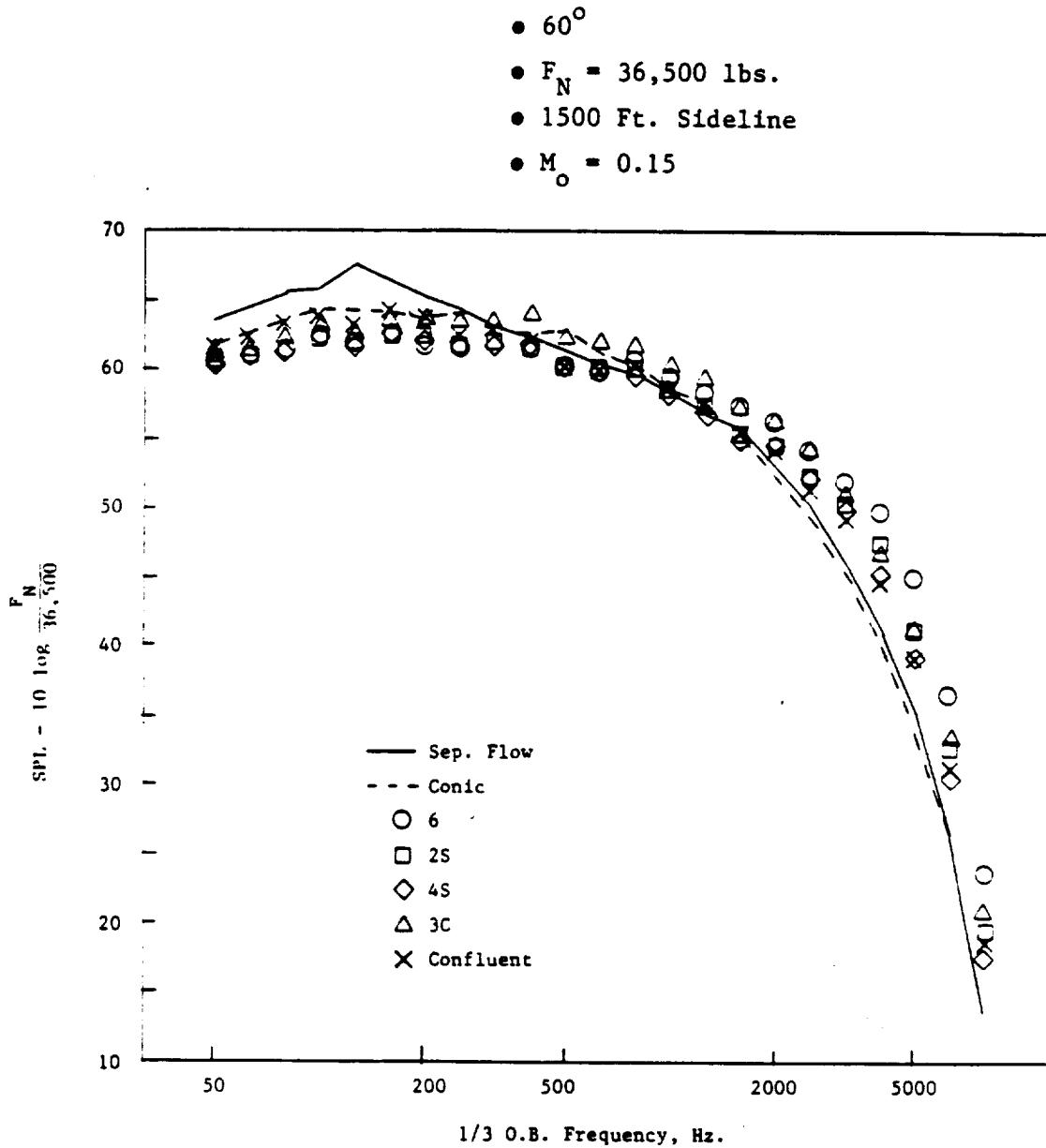


Figure IV.3.7 Comparison of Measured Aft-Arc Spectra  
Under Simulated Flight Conditions

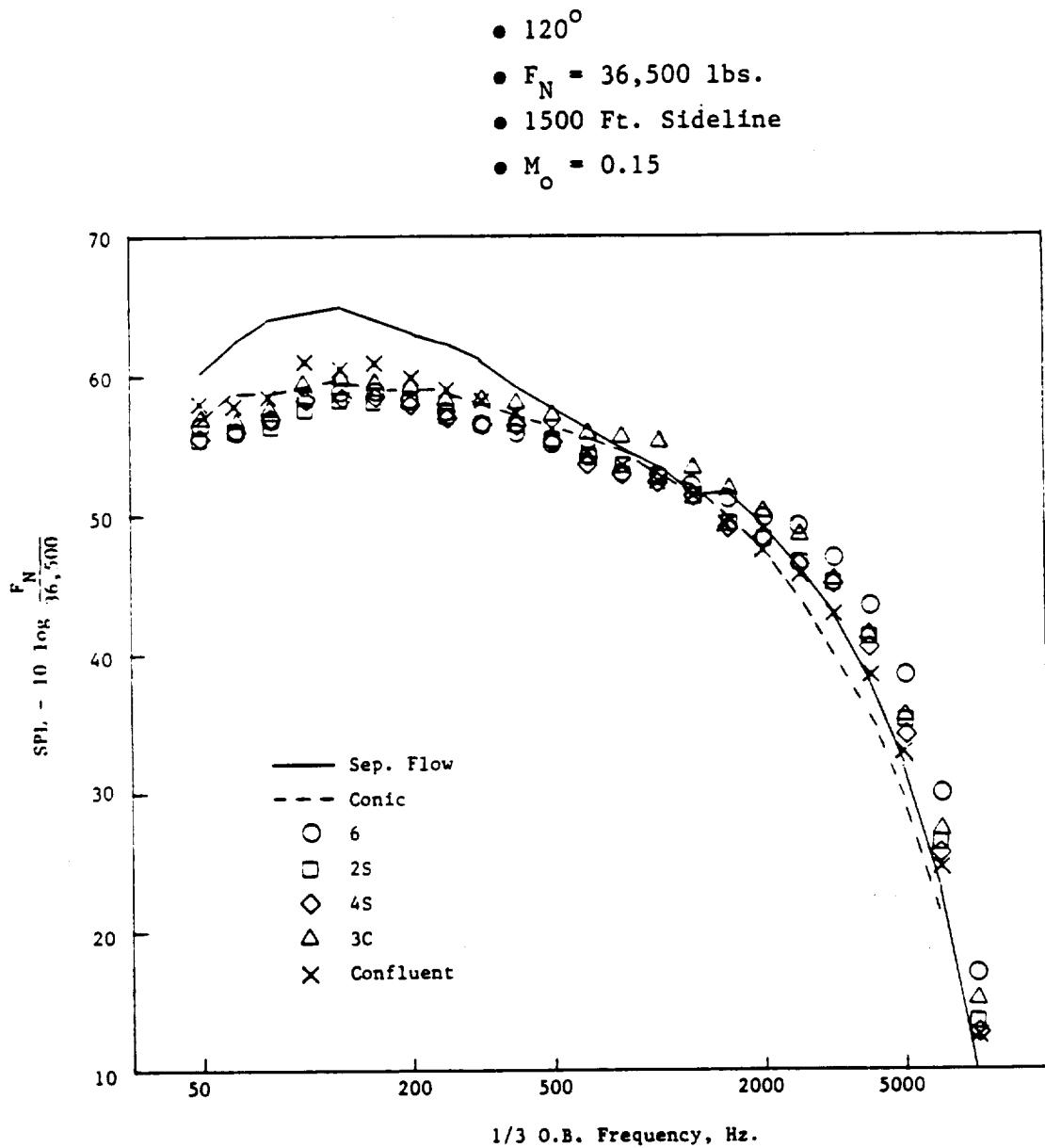
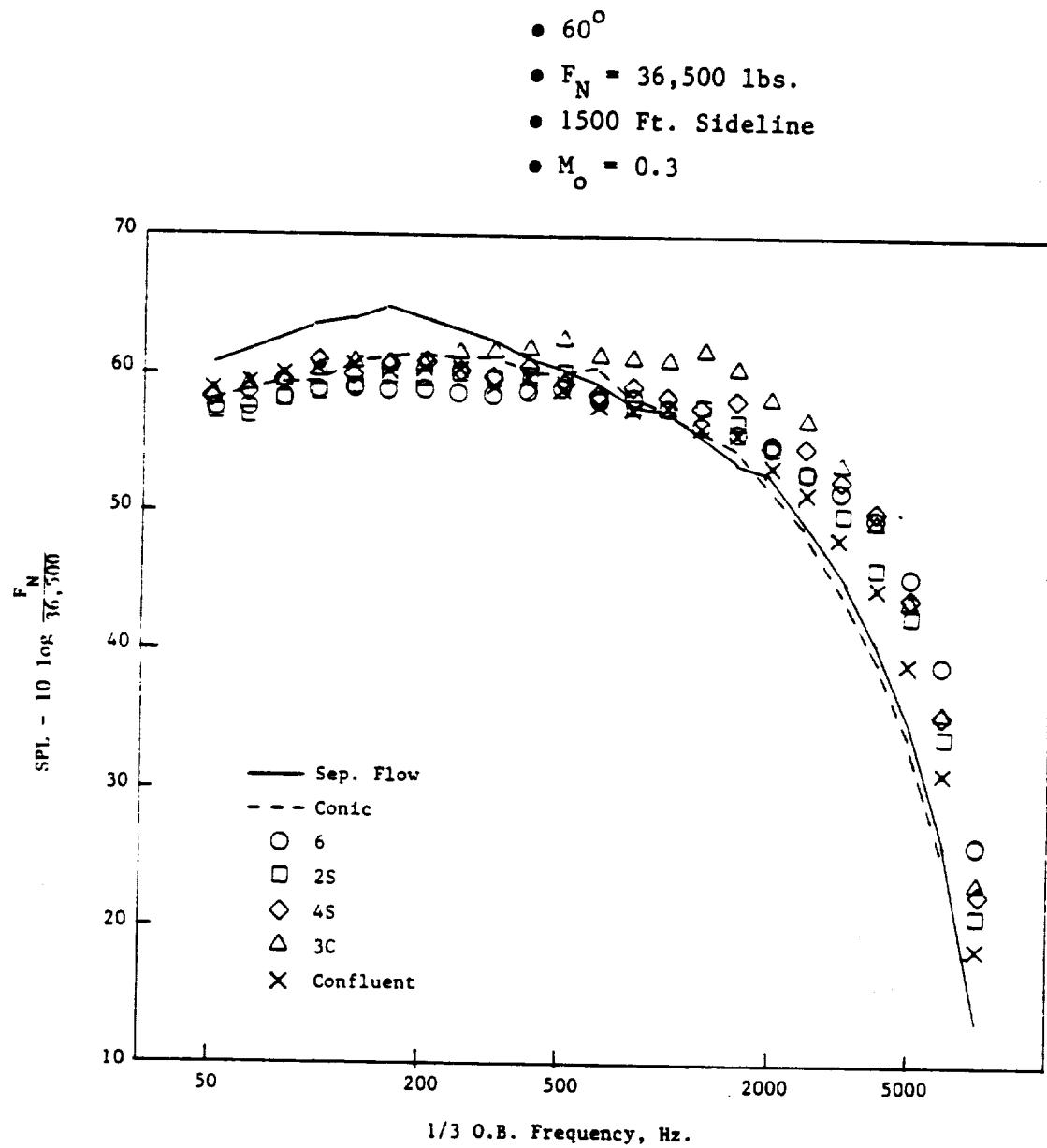


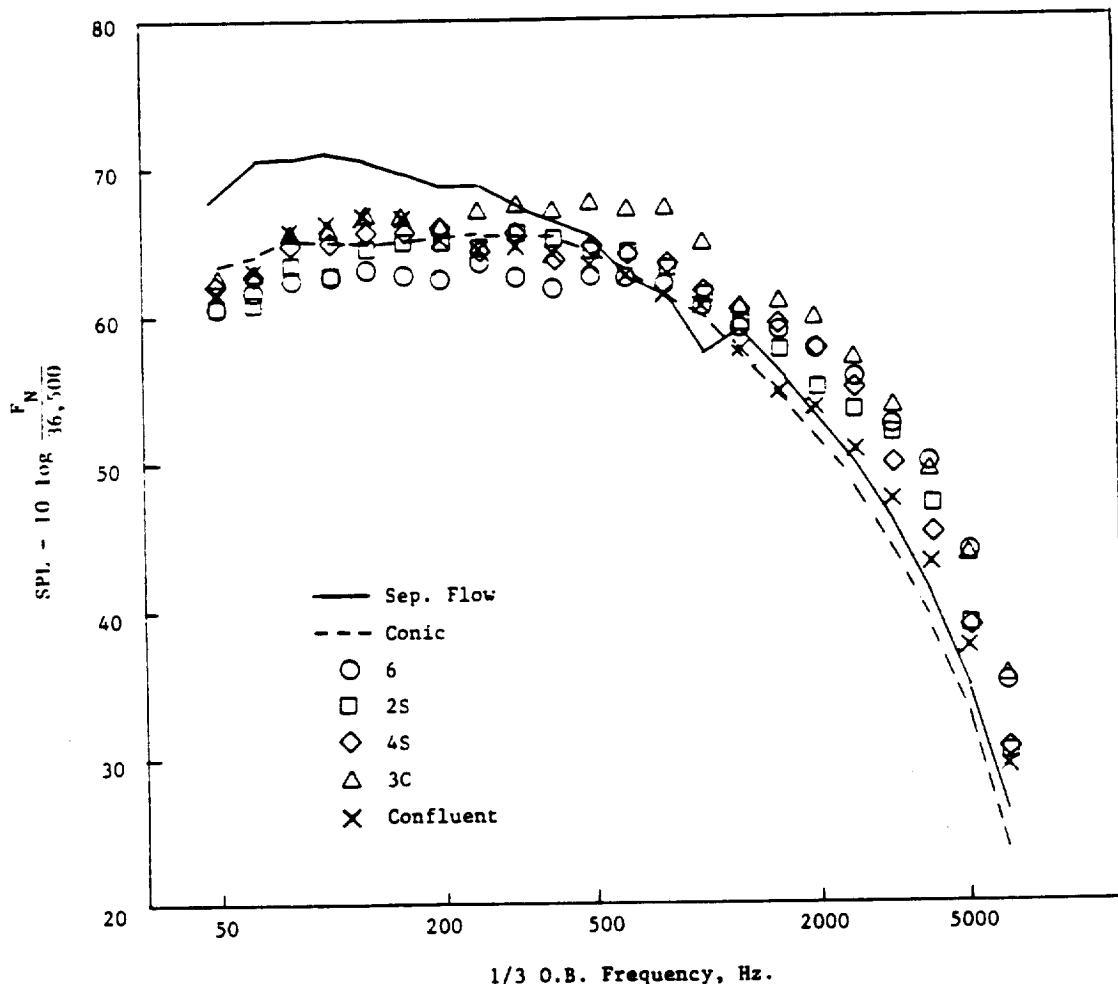
Figure IV.3.8 Comparison of Measured Forward Arc Spectra  
Under Simulated Flight Conditions



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Figure IV.3.9 Comparison of Measured Aft Arc Spectra  
Under Simulated Flight Conditions

- $120^\circ$
- $F_N = 36,500$  lbs.
- 1500 Ft. Sideline
- $M_\infty = 0.3$



where:  $SPL_{static}$  = Static Sound Pressure Level  
 $SPL_{flight}$  = Flight Sound Pressure Level  
 $v_j$  = Jet Mixed Velocity  
 $v_r$  = Relative Velocity =  $v_j - v_a$   
 $v_a$  = Aircraft Velocity  
 $M_a$  = Aircraft Mach No.  
 $\theta$  = Acoustic angle re Inlet  
 $m$  = Experimentally derived correlation exponent

By comparing the Overall Sound Pressure Levels (OASPL) between static and flight, the correlation exponent can be derived from the scale model data. The values of the experimentally derived correlation exponent for the 2S and the conic mixer are compared to pretest prediction values in Figures IV.3.10 and IV.3.11. These plots suggested that early status predictions were overpredicting the flight noise at mid angles ( $40^\circ$  to  $110^\circ$ ) and underpredicting the flight noise at extreme aft angles ( $140^\circ$  to  $160^\circ$ ).

#### 4.3.3 NOZZLE EXIT PLANE VELOCITY MEASUREMENTS

Because of the large gradients in exit plane velocity which occurred over relatively small circumferential and radial distances, it was not possible to develop a very useful velocity contour map with the limited number of measured data points. Instead, it was found to be more meaningful to plot measured velocities as a function of diameter normalized distance from the centerline, putting all of the data points on the same plot.

Figure IV.3.12 shows the exit plane mean axial velocity as normalized by the mass-averaged velocity  $V_m$ , for the 3C mixer, conical mixer and separate-flow nozzles. It can be seen that the data for the 3C mixer collapses fairly well as a curve except in the region of  $.3 < r/D_{eg} < .4$ , where a large spread in the data is observed. This range corresponds to the region between the lobe inner and outer diameters.

A similar exit plane axial velocity survey plot for the 4S mixer is shown in Figure IV.3.13. Again the greatest variance in axial velocities occurs in the region between the lobe inner and outer diameters.

Figure IV.3.10 "m" Factor Directivity Pattern

- Takeoff
- Full Scale
- 1500 Ft. Sideline

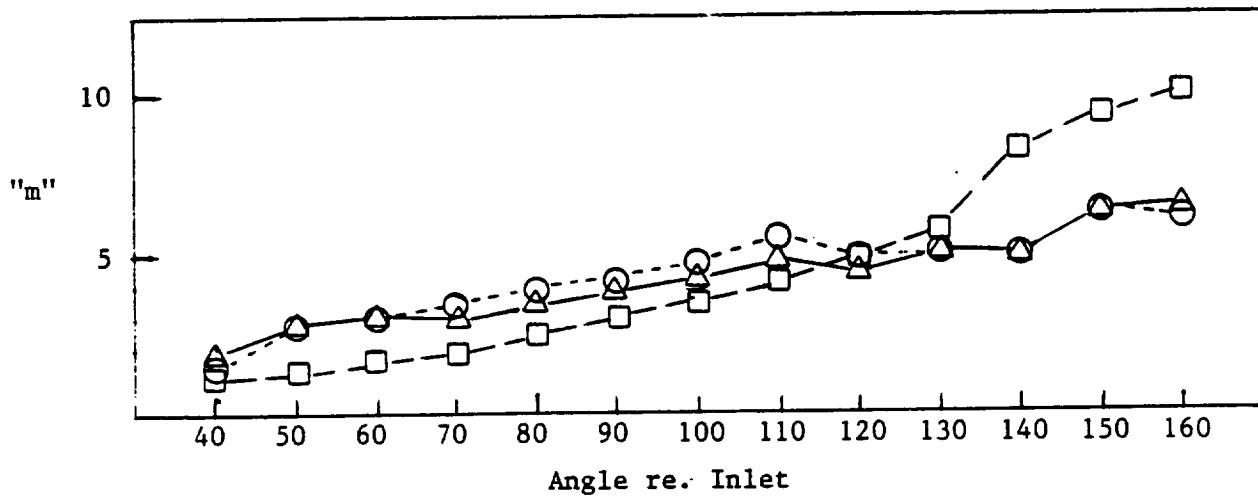
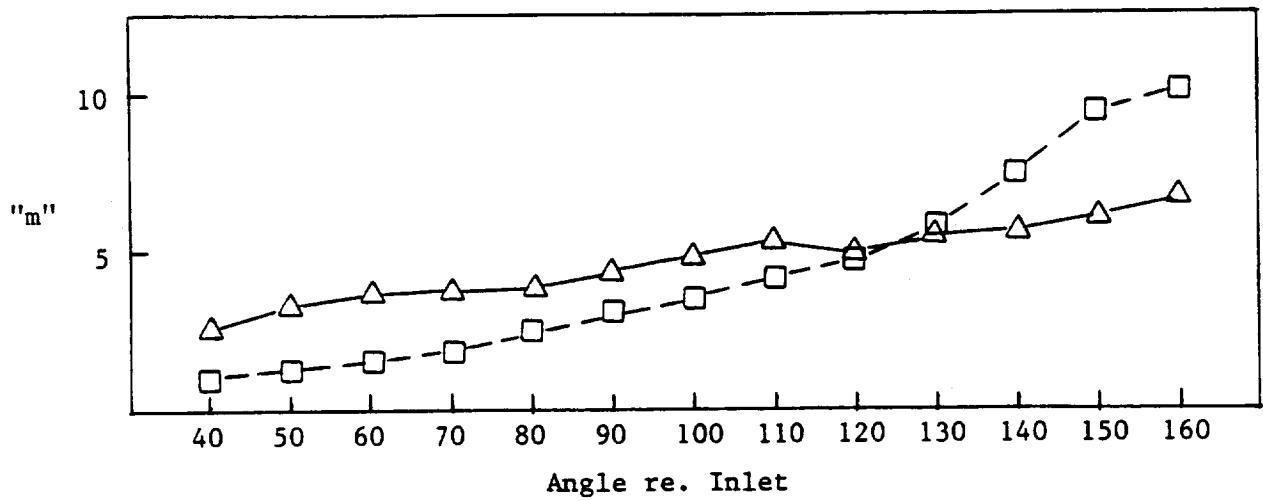


Figure IV.3.11 "m" Factor Directivity Pattern

- Approach
- Full Scale
- 1500 Ft. Sideline



- Conic
- △— 2S (12 Lobed, Scalloped)
- Prediction (Based on SNECMA Conic Data)

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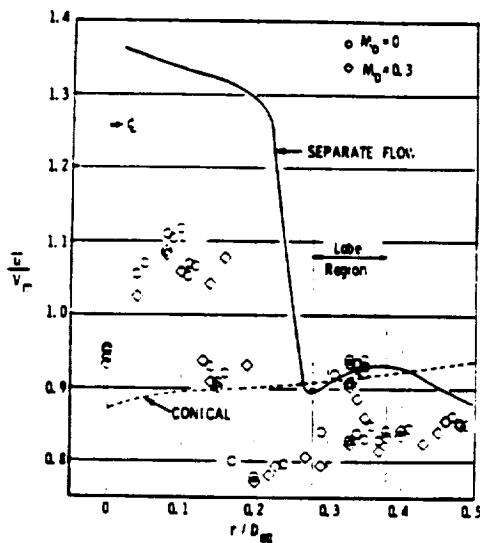


Figure IV.3.12 Mixer 3C Exit Plane Mean Axial Velocity Survey Profile

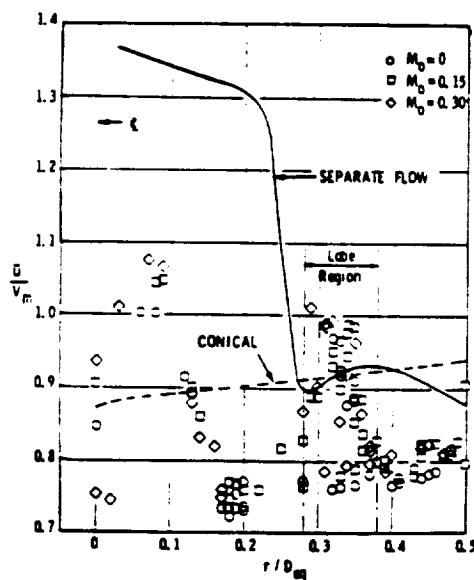


Figure IV.3.13 Mixer 4S Exit Plane Mean Axial Velocity Survey Profiles

Figure IV.3.14 shows the exit plane rms axial turbulence intensity as normalized by the mass-averaged velocity for the 3C mixer, conic mixer and separate-flow nozzles. Similar to the mean axial velocity plots, the greatest data scatter occurs in the lobe region. Figure IV.3.15 again supports the observation that the data has a high degree of scatter in the lobe region.

In comparing the mean axial velocity, Figures IV.3.12 and IV.3.13, along with the axial turbulence intensity, Figures IV.3.14 and IV.3.15, a paradox is observed. Both the mean axial velocity and the axial turbulence intensity levels for mixer 4S are higher than mixer 3C, but 3C has higher noise levels. It is apparent that the exit plane mean axial velocity and axial turbulence intensity levels are not good correlation parameters for determining the noise characteristics of these mixers.

#### 4.3.4 JET PLUME SURVEY MEASUREMENTS

Axial distributions of axial mean velocity and axial turbulence intensity along the nozzle centerline are shown in Figures IV.3.16 and IV.3.17, respectively. These distributions are indicative of jet plume decay rate and turbulence generation in the jet plume and are related to the noise generation/emission processes of the jet plume itself. From Figures IV.3.16a, b, it can be seen that the mixer nozzle mean velocity decay characteristics are similar to that of the separate-flow configuration, both statically ( $M_\infty = 0$ ) and in simulated flight ( $M_\infty = 0.3$ ). Similar trends are also observed for centerline turbulence intensity development, Figures IV.3.17a, b. Axial distributions of  $u$  and  $u'$  along the nozzle lip line are compared in Figure IV.3.18 for  $M_\infty = 0.3$ . These comparisons show no real difference between mixers 3C and 4S either, except very close to the nozzle exit plane ( $x/D_{eq} < 2.0$ ), where turbulence levels for the 3C mixer are seen to be about 10% higher.

Radial distributions of axial mean velocity and axial turbulence intensity at several axial locations along the jet plume were compared at  $M_\infty = 0.3$  simulated flight conditions. Comparisons of  $\bar{u}$  and  $u'$  vs.  $r/D_{eq}$  at  $x/D_{eq} = 2.0, 4.0, 8.0$  and  $12.0$  are shown in Figures IV.3.19 to IV.3.24,

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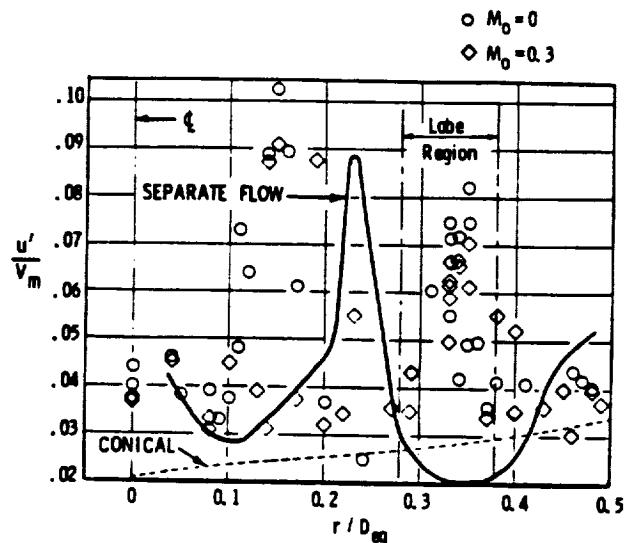


Figure IV.3.14 Mixer 3C Exit Plane Axial Turbulence Intensity Survey Profiles

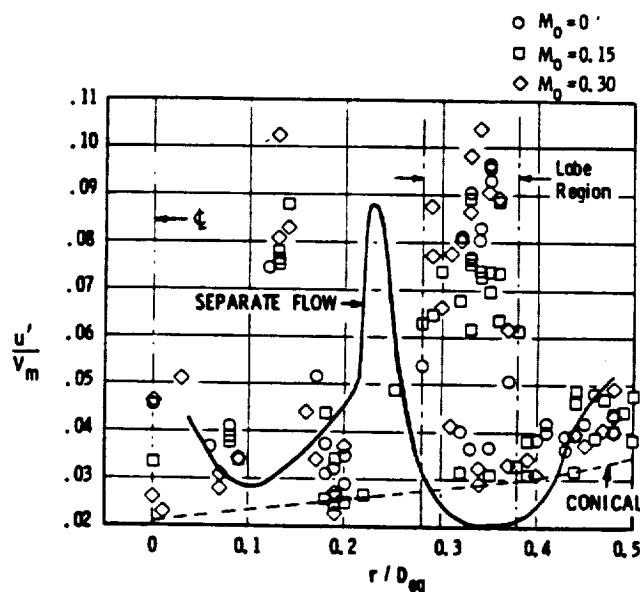


Figure IV.3.15 Mixer 4S Exit Plane Axial Turbulence Intensity Survey Profiles

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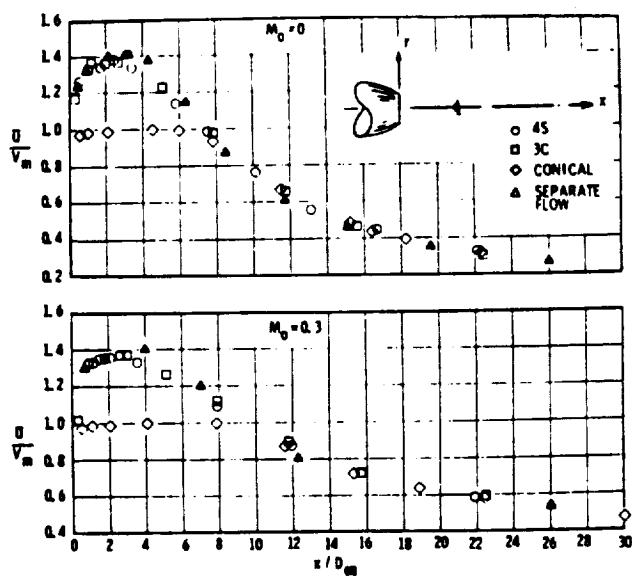


Figure IV.3.16 Comparison of Measured Jet Plume Centerline Mean Velocity Decay Characteristics

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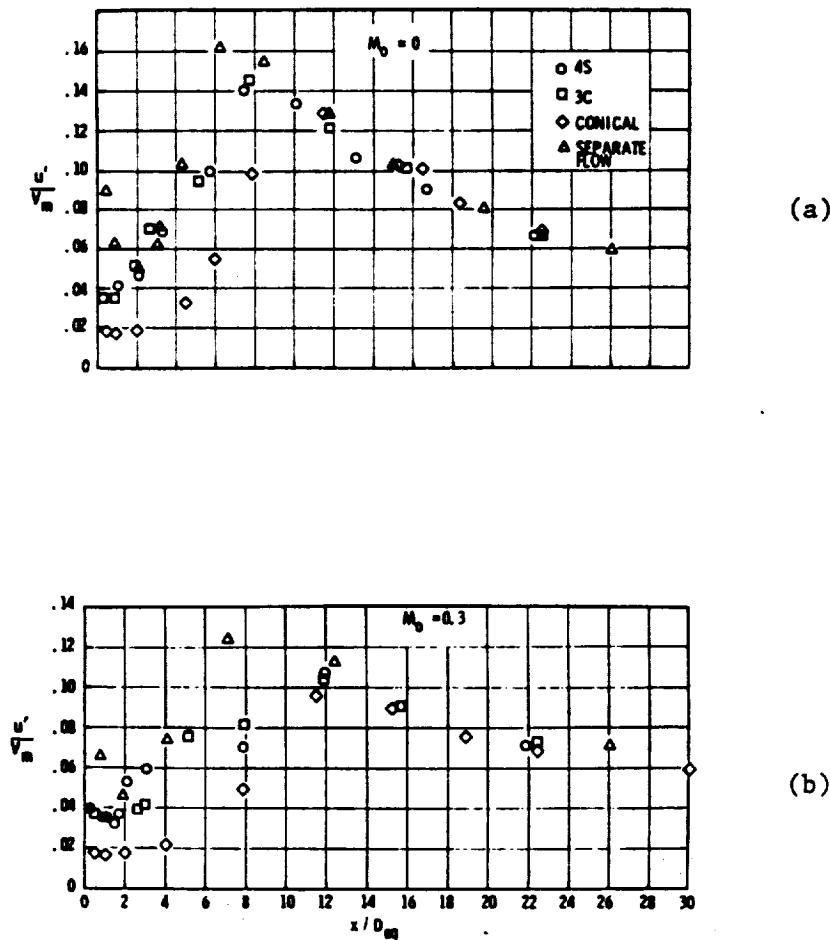


Figure IV.3.17 Comparison of Measured Jet Plume Centerline Axial Turbulence Intensity Distributions

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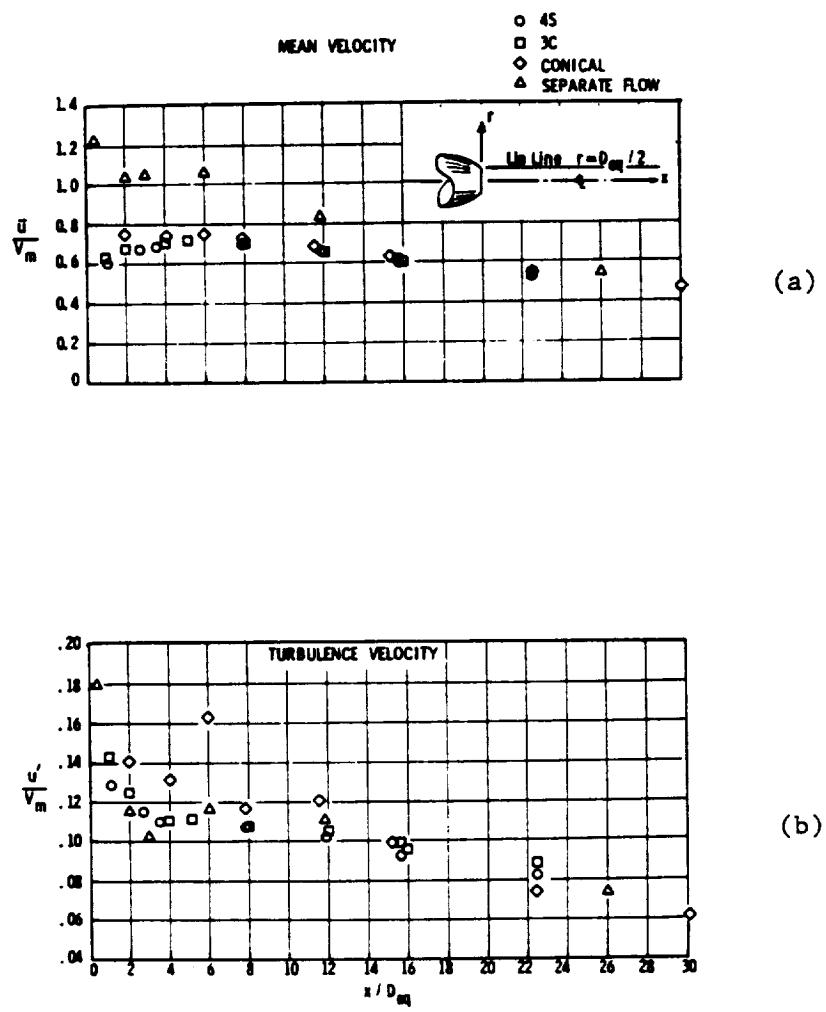


Figure IV.3.18 Comparison of Measured Jet Plume Lip-  
Line Axial Distributions of Mean  
Velocity and Turbulence Intensity

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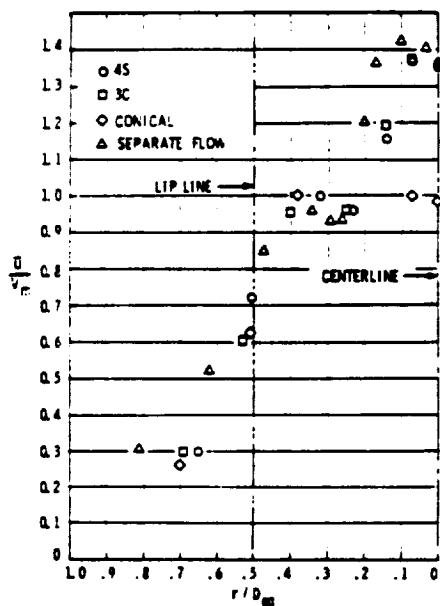


Figure IV.3.19 Comparison of Measured Mean Velocity  
Radial Profiles at  $x/D_{eq} = 2.0$  and  
 $M_0 = 0.3$

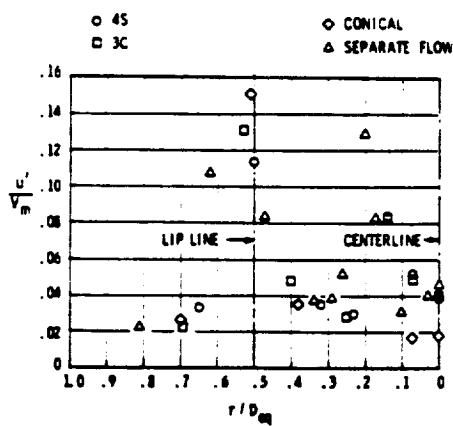


Figure IV.3.20 Comparison of Measured Turbulence  
Intensity Radial Profiles at  
 $x/D_{eq} = 2.0$  and  $M_0 = 0.3$

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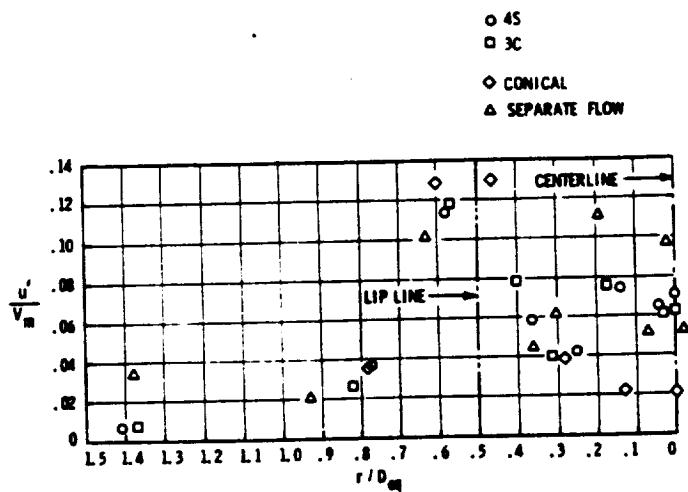


Figure IV.3.21 Comparison of Measured Turbulence Intensity Radial Profiles at  $x/D_{eq} = 4.0$  and  $M_0 = 0.3$

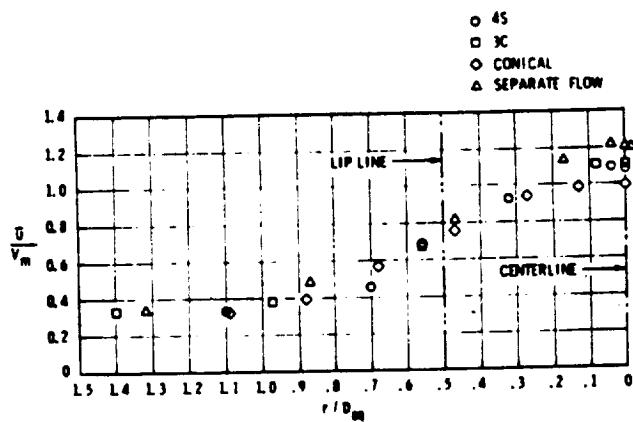


Figure IV.3.22 Comparison of Measured Mean Velocity Radial Profiles at  $x/D_{eq} = 8.0$  and  $M_0 = 0.3$

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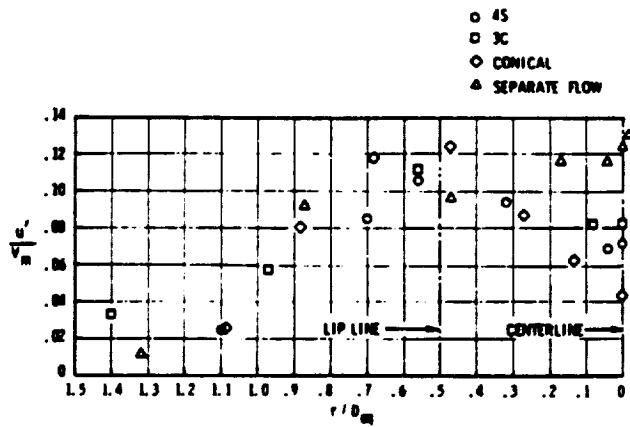


Figure IV.3.23 Comparison of Measured Turbulence Intensity Radial Profiles at  $x/D_{eq} = 8.0$  and  $M_0 = 0.3$

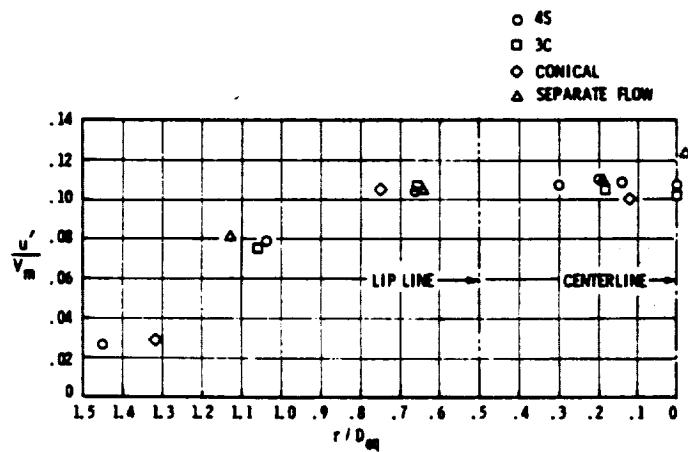


Figure IV.3.24 Comparison of Measured Turbulence Intensity Radial Profiles at  $x/D_{eq} = 12.0$  and  $M_0 = 0.3$

respectively. These comparisons show similar plume development for all nozzles examined in the similarity region  $x/D_{eq} > 8.0$ . In the potential core zone  $x/D_{eq} < 4.0$ , only the conical nozzle profiles are appreciably different; and this is because the conical nozzle exit plane profile is nearly flat (Figure IV.3.12), whereas the mixers and separate-flow nozzle have an initial two-stream profile shape. Note that the large differences in mean velocity profile at the exit plane (Figures IV.3.12 and IV.3.13) between the mixers and the separate-flow nozzle rapidly diminish with axial distance, as the profiles are very similar at  $x/D_{eq} = 2.0$  and  $4.0$ . On the basis of available data, it can be concluded from these LDV measurement comparisons that the jet plume development is very similar for the two mixers tested, and no differences were observed which could explain the observed noise differences.

One final LDV measurement was made to further distinguish between the two mixers. Each mixer was run with equal fan stream and core stream conditions,  $P_T/P_0 = 1.44$  and  $T_T/T_0 = 1.56$ . The purpose of this test was to assess the relative importance of turbulence and/or noise generated by the internal flow over and through the mixer lobes as opposed to the turbulence and/or noise generated by the mixing of the fan and core streams after exiting from the lobes. Exit plane LDV surveys were made for this condition, and the results are shown in Figure IV.3.25. The mean velocity profiles are seen to be nearly uniform and similar but about 5% lower in level than the conical nozzle. The turbulence levels are, however, significantly higher than those of the conical nozzle; and it appears that mixer 3C exhibits higher levels in the lobe region than does mixer 4S. Compared to the takeoff fan stream/core stream conditions of Figures IV.3.14 and IV.3.15, the 4S mixer turbulence levels are much lower while the 3C mixer levels are comparable to the levels shown in Figure IV.3.14.

Although the results in Figure IV.3.25 do not truly isolate the internal flow generated turbulence over the lobe surfaces, they suggest that the mixer 3C lobe design does introduce higher surface generated turbulence and therefore a higher internally generated noise level. Since the 3C mixer lobes were cut back relative to the original design intent, it is probable that

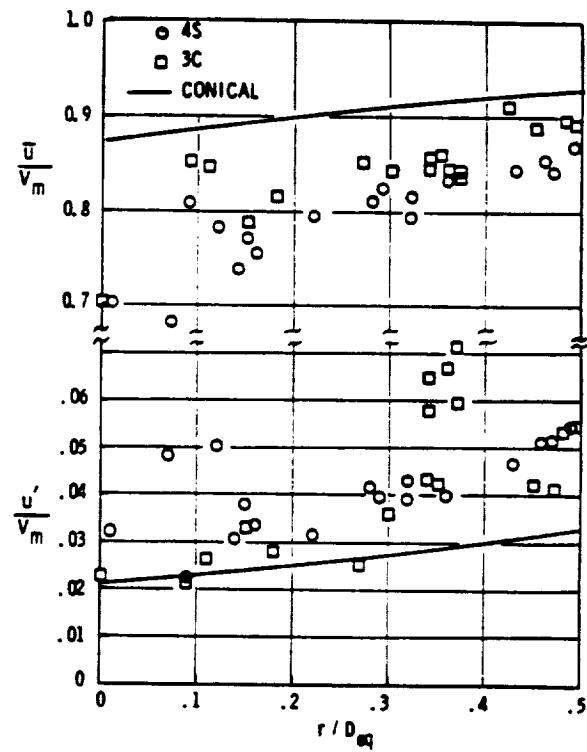


Figure IV.3.25 Exit Plane Survey of  $\bar{u}$  and  $\bar{u}'$  for Mixers 3C and 4S with Equal Core and Fan Stream Conditions

cutting back of the lobes may have caused the additional turbulence generation. Comparisons of jet plume centerline and lip line distributions of  $\bar{u}$  and  $u'$  for the two mixers (not shown herein) showed the mixers to be virtually identical and the same as the conical nozzle distributions for equal fan stream/core stream conditions.

#### 4.3.5 AEROACOUSTIC MODEL PREDICTIONS

Attempts were made to predict the acoustic characteristics of each nozzle using the aeroacoustic prediction model developed by Mani, Griebe, and Balsa (M.G.B.), (Reference 8) and the aerodynamic performance data measured with the laser doppler velocimeter. The M.G.B. aeroacoustic prediction model allows the specification of arbitrary temperature and total pressure profiles at the nozzle exit plane. The downstream jet plume flow characteristics are then computed from the initial exit profiles. From these flow characteristics, the mixing noise spectrum and farfield directivity are estimated.

As a baseline, the acoustic levels for the conical nozzle were predicted using M.G.B., and comparisons with measured data were made (Reference Figure IV.3.26 and IV.3.27). There is reasonably good agreement of the predicted and measured spectral levels and directivities, except under flight conditions, where the levels tend to be slightly overpredicted.

The mixer nozzles were similarly evaluated with comparisons of predictions and measured data (Reference Figures IV.3.28 and IV.3.29 for a typical example). Again, the static levels were predicted reasonably well, but the flight levels were overpredicted. Inspection of the power level spectra shows significantly different spectral shapes between the measurement and prediction. The largest differences in spectral shape occur at high frequency (approximately 5 KHz, to 40 KHz, unscaled). These differences are probably due to internally generated mixing noise, which the M.G.B. prediction is incapable of modeling due to lack of internal aerodynamic performance information. This performance information could not be obtained with an LDV system due to the fact that the outside nozzle shrouds the inside mixing process.

Figure IV.3.26 Conic Nozzle Model OASPL Directivity

•  $V_m = 945$  fps

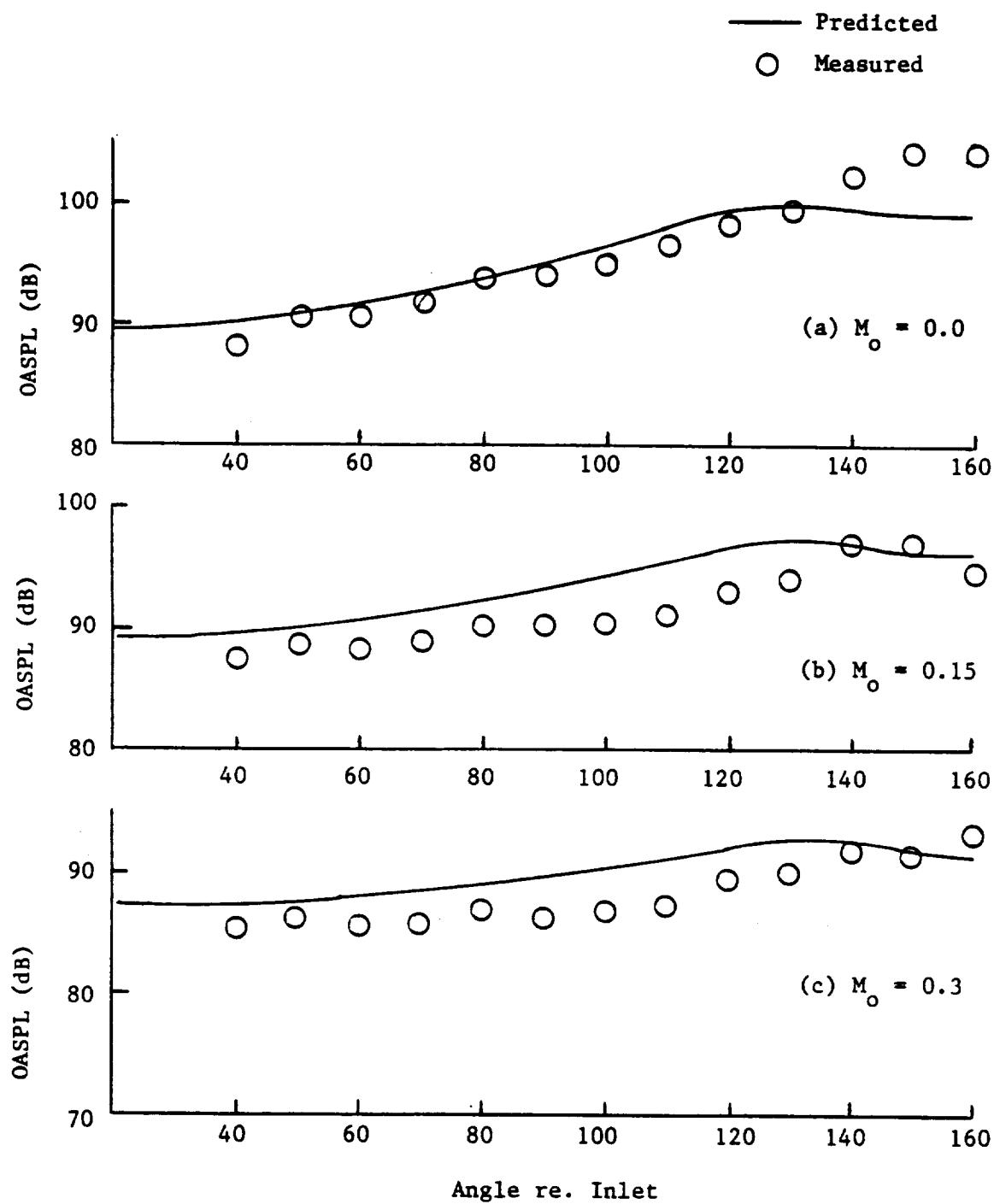


Figure IV.3.27.a Conical Nozzle Model Power Levels

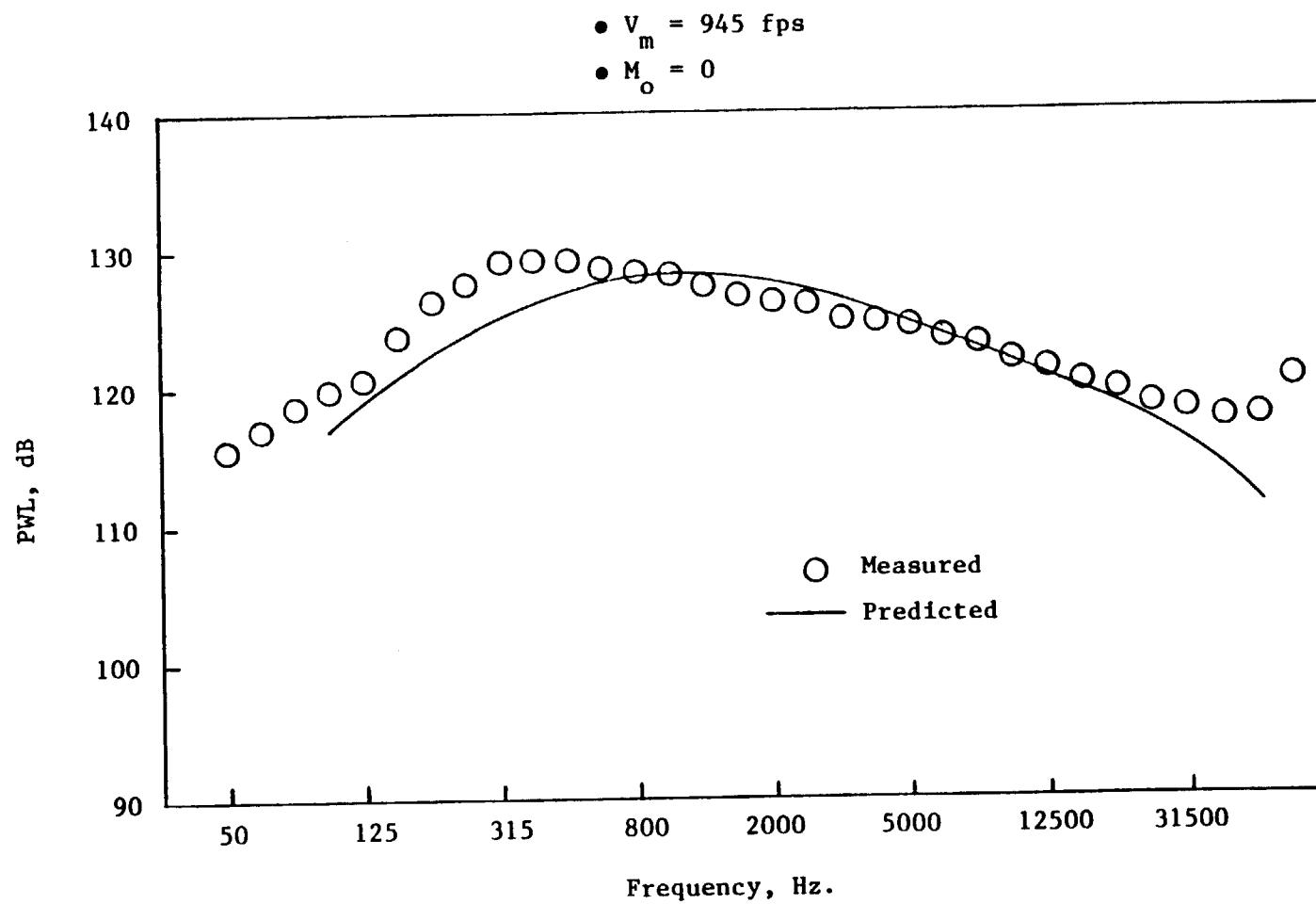


Figure IV.3.27.b Conical Nozzle Model Power Levels

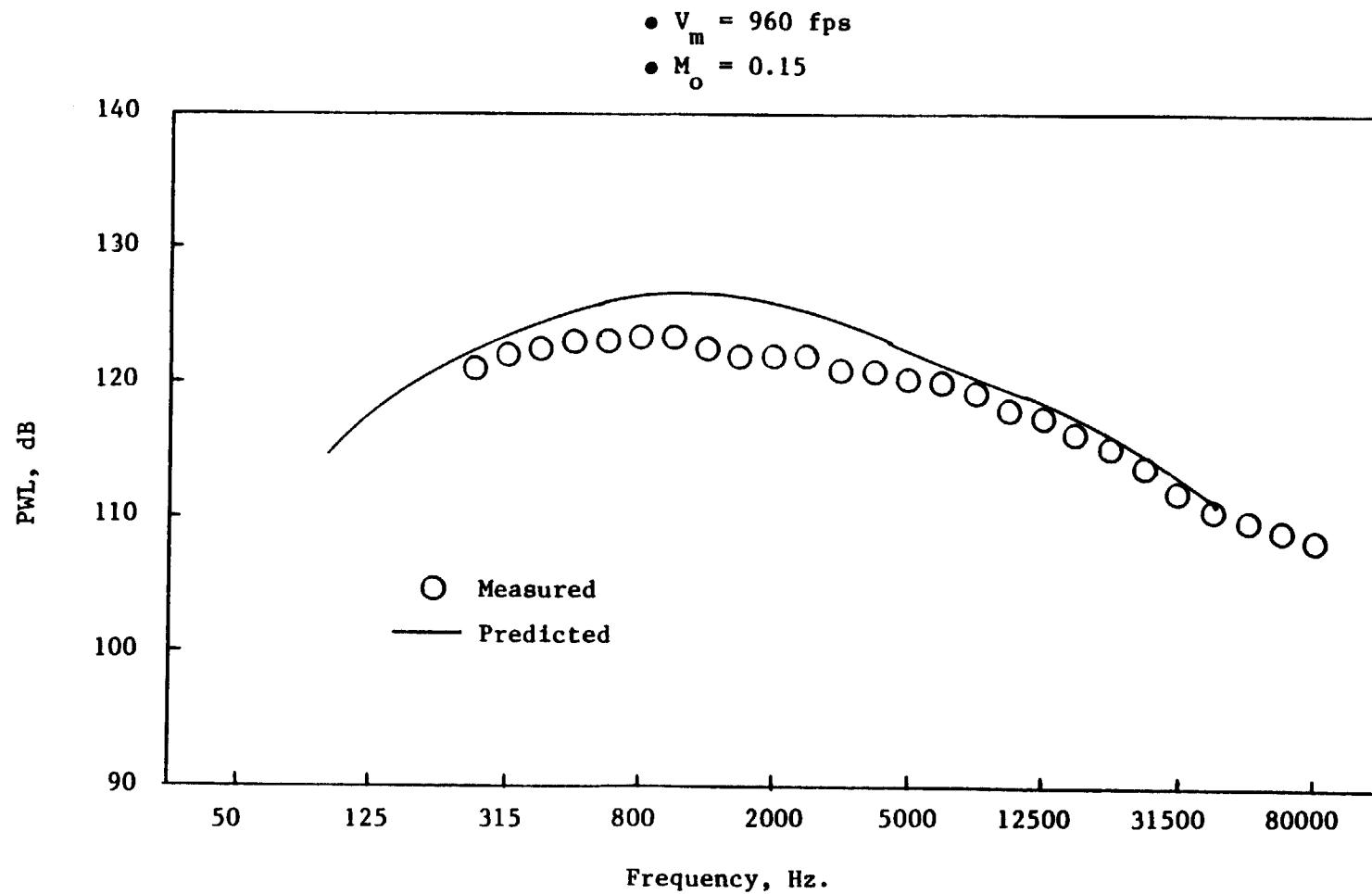
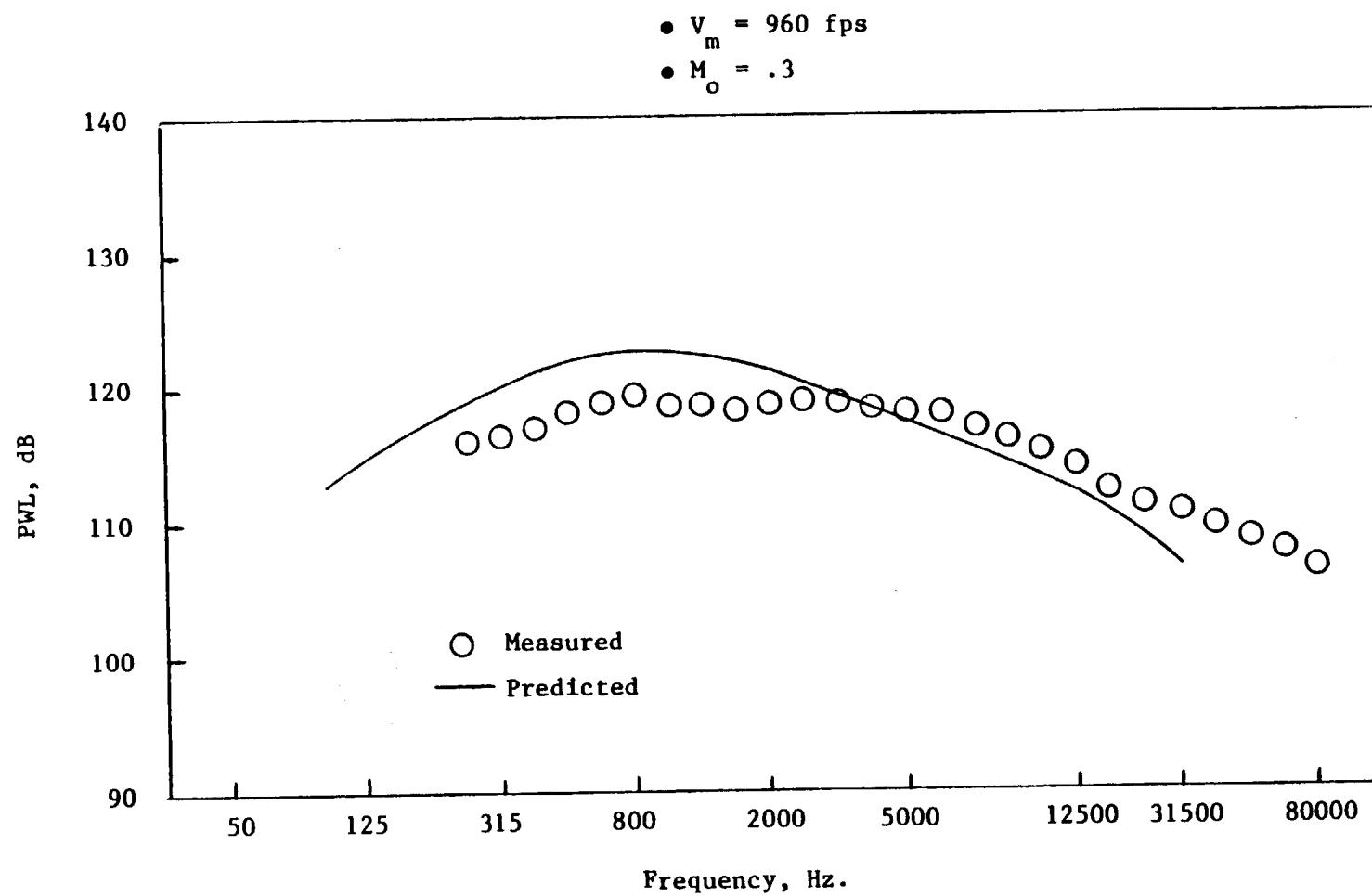


Figure IV.3.27.c Conical Nozzle Model Power Levels



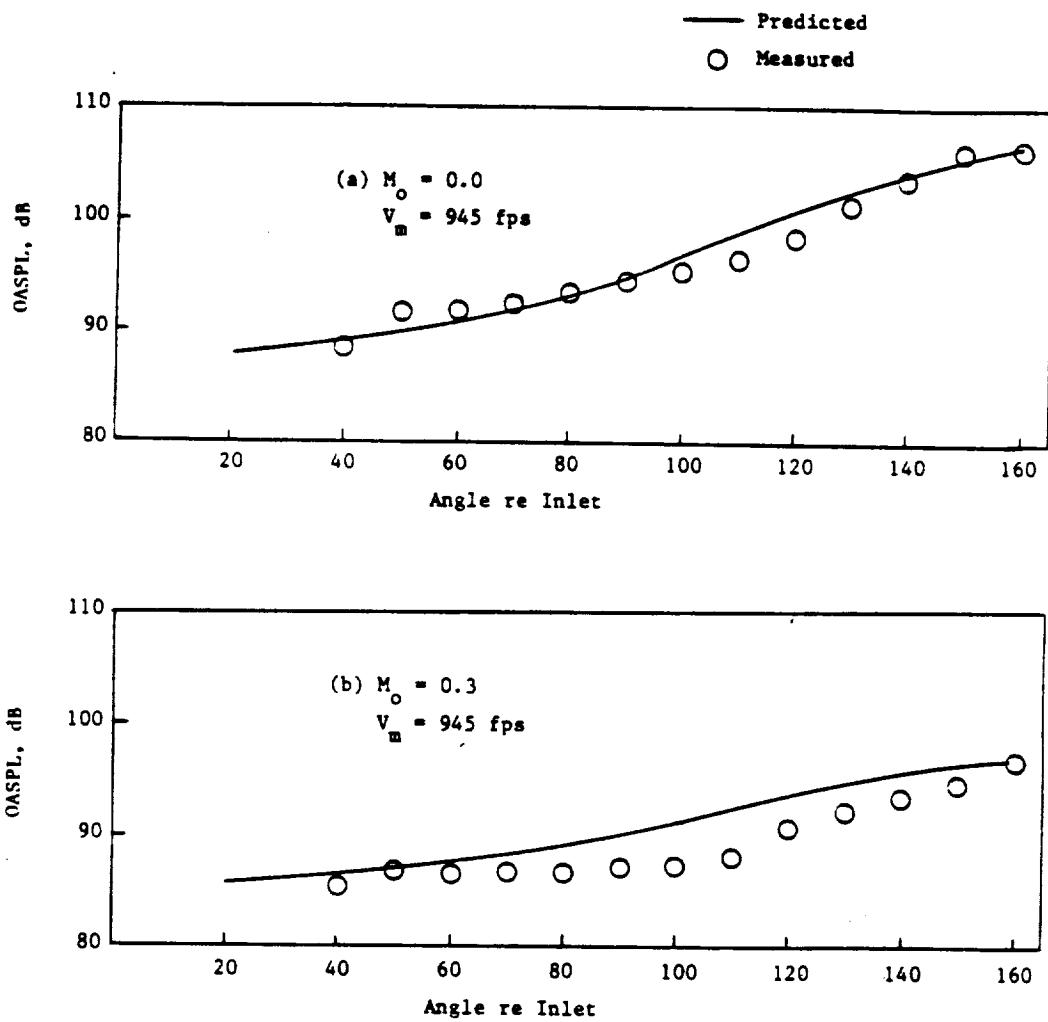


Figure IV.3.28 P4 Mixer Model OASPL Directivity

Figure IV.3.29.a P4 Mixer Model Power Levels

- $V_m = 945 \text{ fps}$
- $M_o = 0.0$

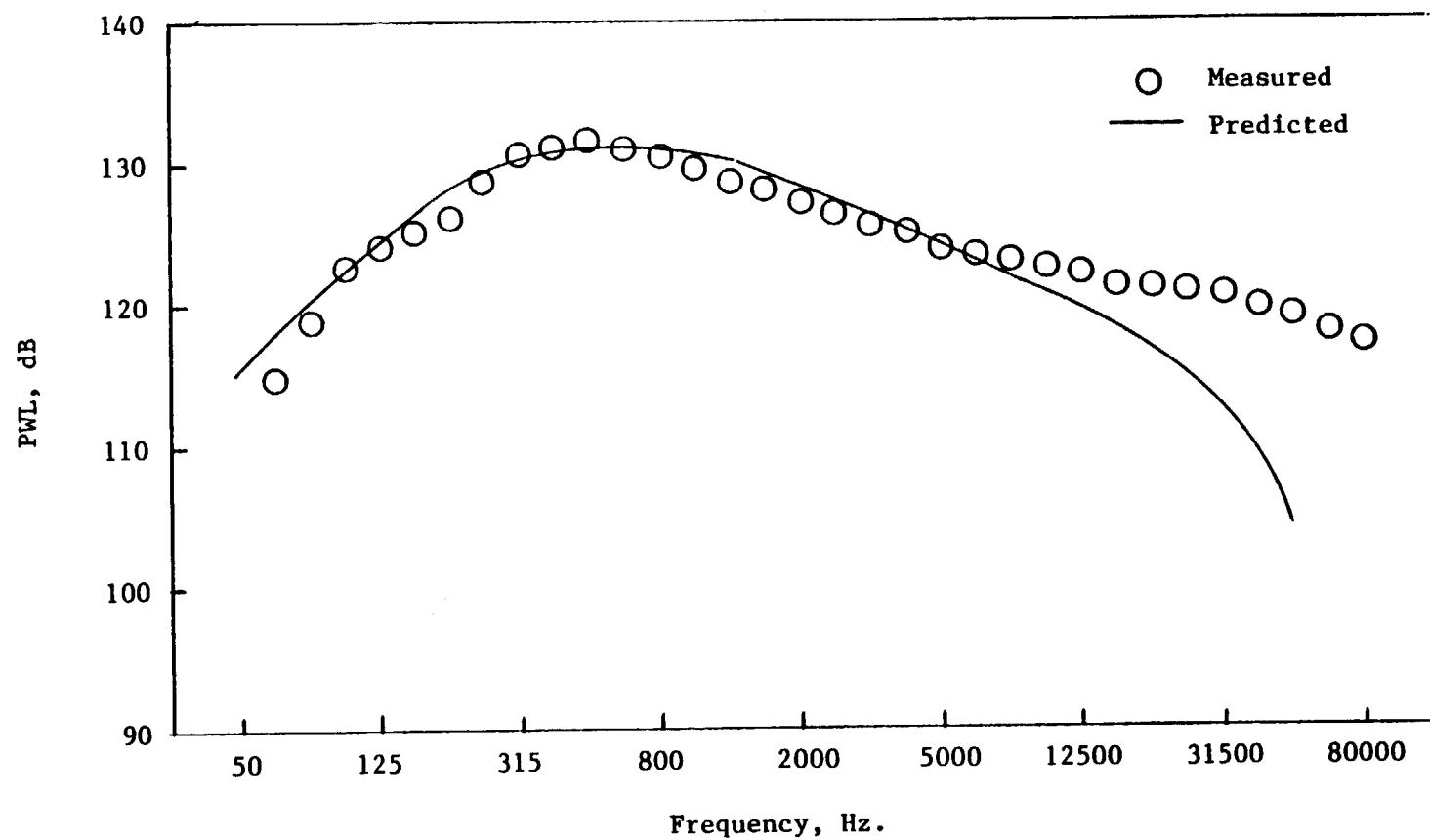


Figure IV.3.29.b P4 Mixer Model Power Levels

●  $V_m = 945 \text{ fps}$

●  $M_o = 0.15$

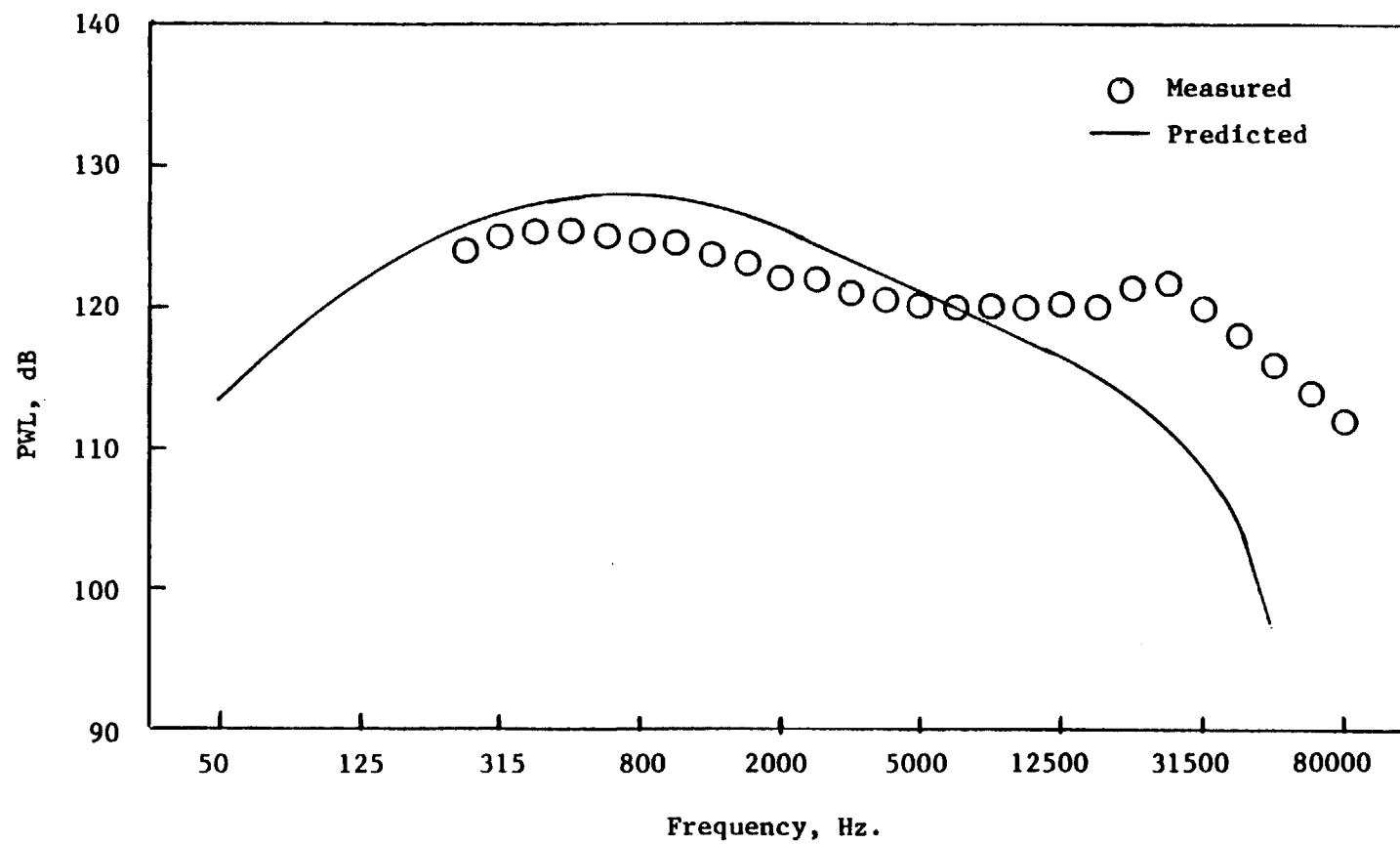
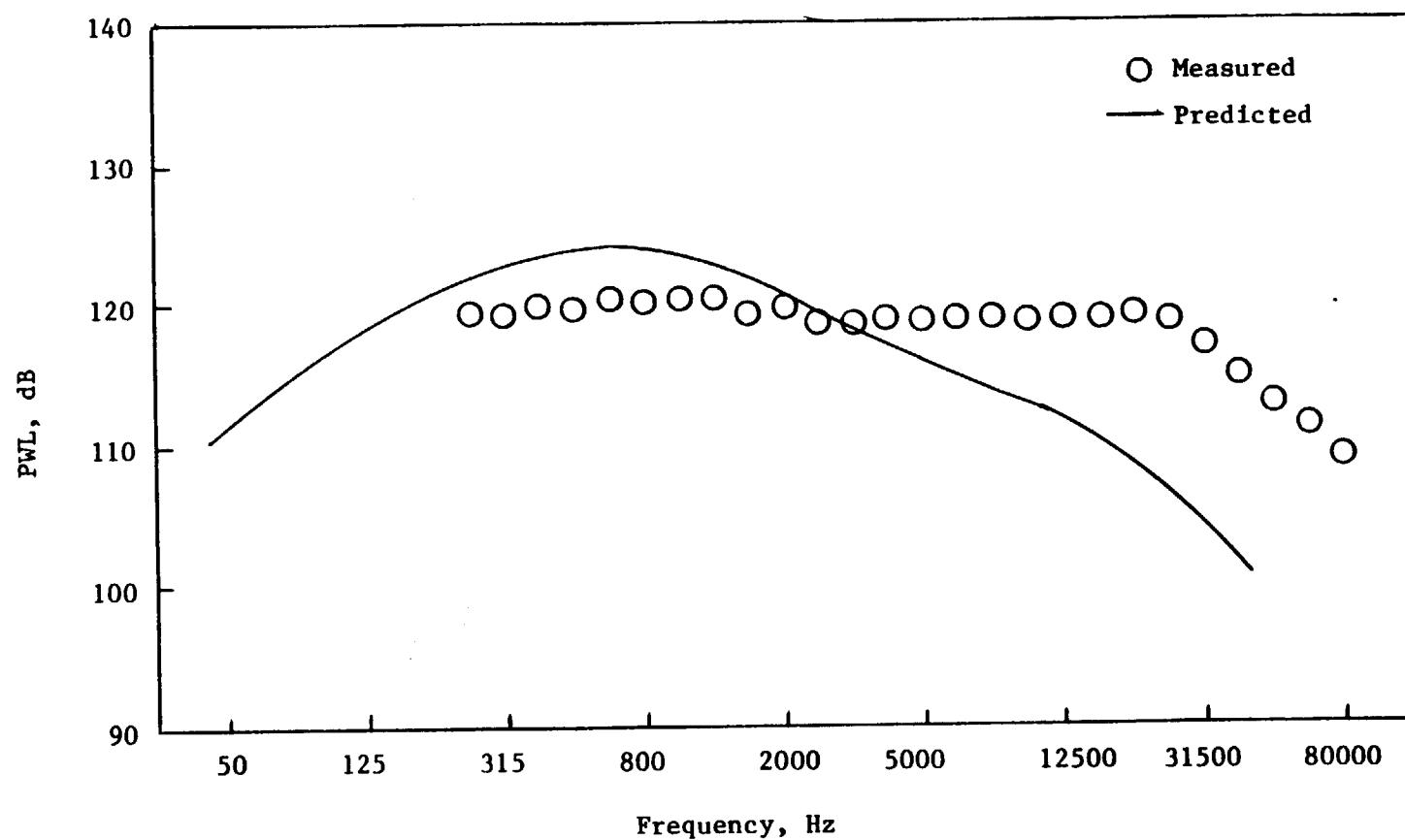


Figure IV.3.29.c P4 Mixer Model Power Levels

- $V_m = 945 \text{ fps}$
- $M_o = 0.3$



## 5.0 ICLS TEST

The full scale demonstration of technology developed under the Energy Efficient Engine (E<sup>3</sup>) program was accomplished during the Integrated Core/Low Spool (ICLS) Test series. The important acoustic technology features which were demonstrated during this program are highlighted in Figure V.1.

### 5.1 TEST PLAN

A total of four different nacelle suppression configurations were initially planned to be tested on the ICLS. But, due to an acoustic panel face sheet deformation (see Photograph V.1.1 and Reference 10), one configuration was changed, and another configuration was added using a readily available hardwall performance bellmouth inlet as opposed to previously planned aero-acoustic inlet, for a total of five different nacelle test configurations (Reference Table V.1.1).

The hardwall nacelle configurations, unless otherwise noted, were achieved using Scotch Brand aluminum tape #425 (5 mil thick, with pressure sensitive adhesive), run axially along the panel, with approximately 25% tape overlap (Reference Photograph V.1.2). The one-half treated inlet configuration (#2) was accomplished by taping the leading 0.48 meters (19 inches) of the inlet. The hardwall exhaust configuration (#4) had a treated turbine plug and a treated fan frame region between the rotor and the stator.

Three acoustic fan speed operating lines were tested for the first four acoustic test configurations. Each operating line consisted of at least seven stabilized speed points (eight on configurations 1 and 2, Reference Table V.1.2), selected to be within 50 RPM of the FPS operating speeds.

The last acoustic test configuration was tested for only one operating line, but it was held longer on point (2 minutes as opposed to 1 minute) so that multiple acoustic samples could be taken to improve the statistical accuracy of the results.

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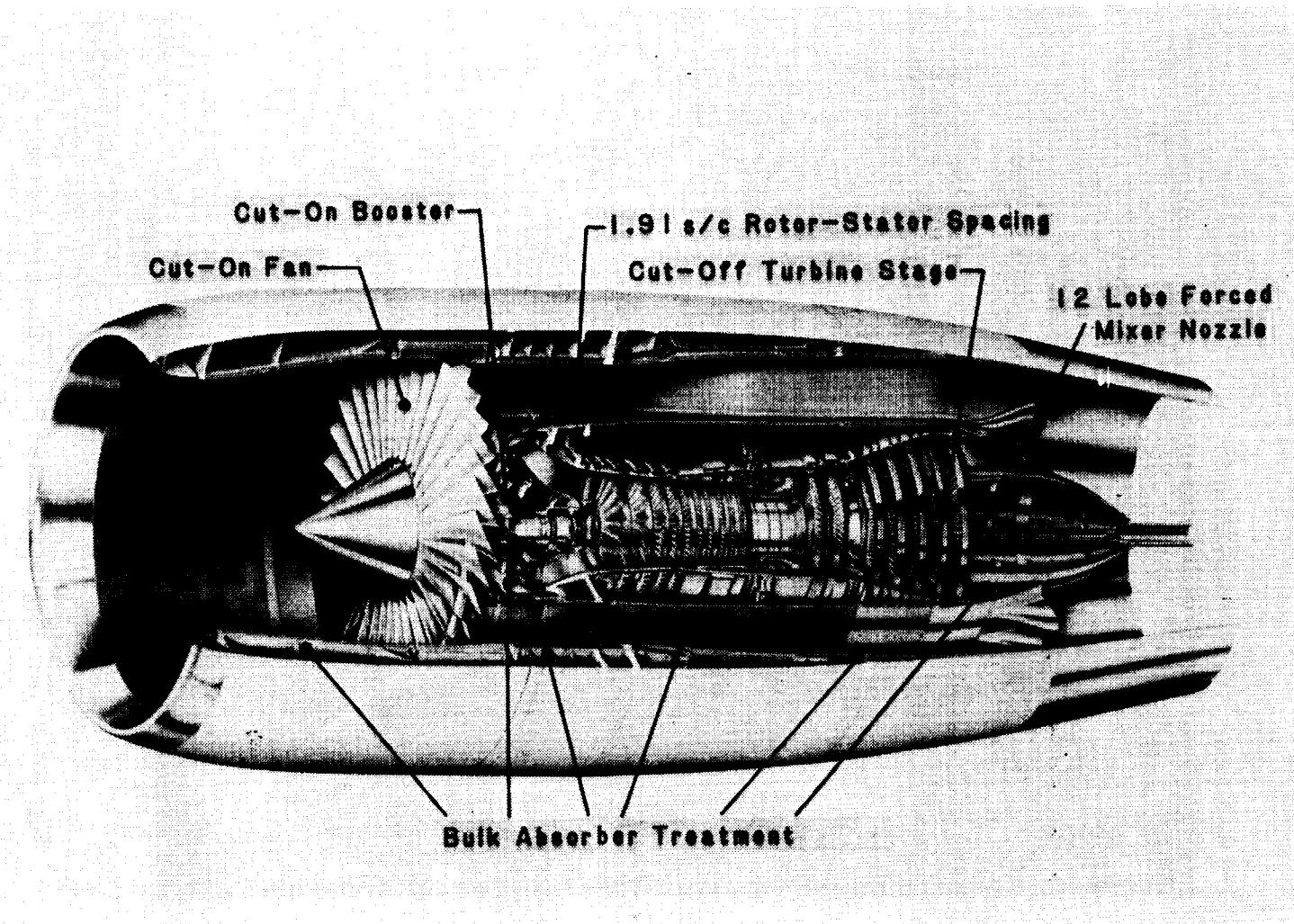


Figure V.1 E<sup>3</sup> Acoustic Features

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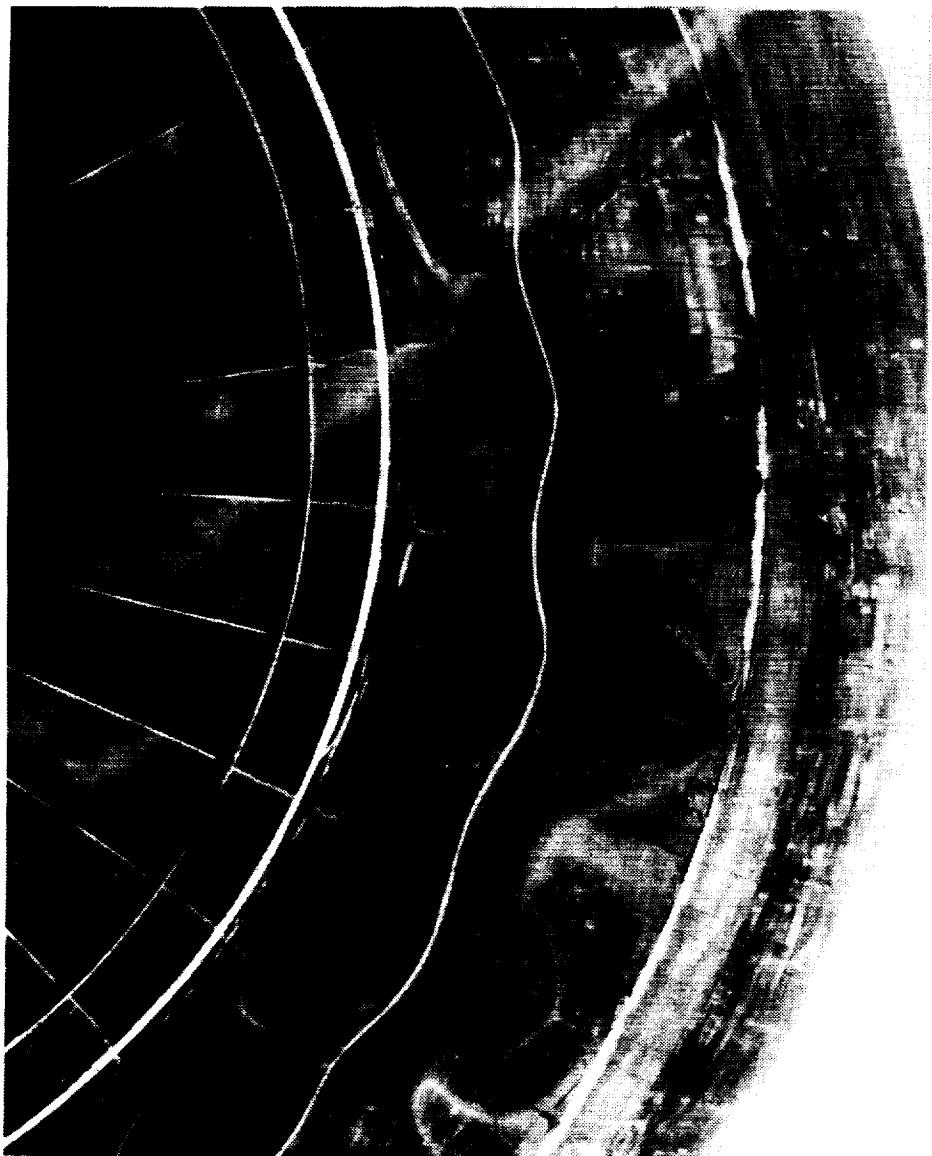


Figure V.1.1 Acoustic Panel Face Sheet (Deformed)

TABLE V.1.1  
TEST CONFIGURATIONS

<u>CONFIG.</u>	<u>INLET</u>	<u>EXHAUST</u>	<u>DAY TESTED</u>
1	Aero Acoustic, Treated	Treated	6/07/83
2	Aero Acoustic, 1/2 Treated	Treated	6/08/83
3	Aero Acoustic, Hardwall	Treated	6/09/83
4	Bellmouth, Hardwall	Hardwall	6/14/83
5	Bellmouth, Hardwall	Treated	6/15/83

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Figure V.1.2 Hardwall Taping Procedure

TABLE V.1.2  
ACOUSTIC TESTING - FAN SPEED OPERATING LINE

<u>PT. NO.</u>	<u>CORRECTED FAN SPEED</u>
1	1820
2	2030
3	2180
4	2320
5	2500
6	2800
7	3100
(8)*	3270

\*This point was not reached on Configurations 3, 4, and 5 due to restrictions on exhaust gas temperature.

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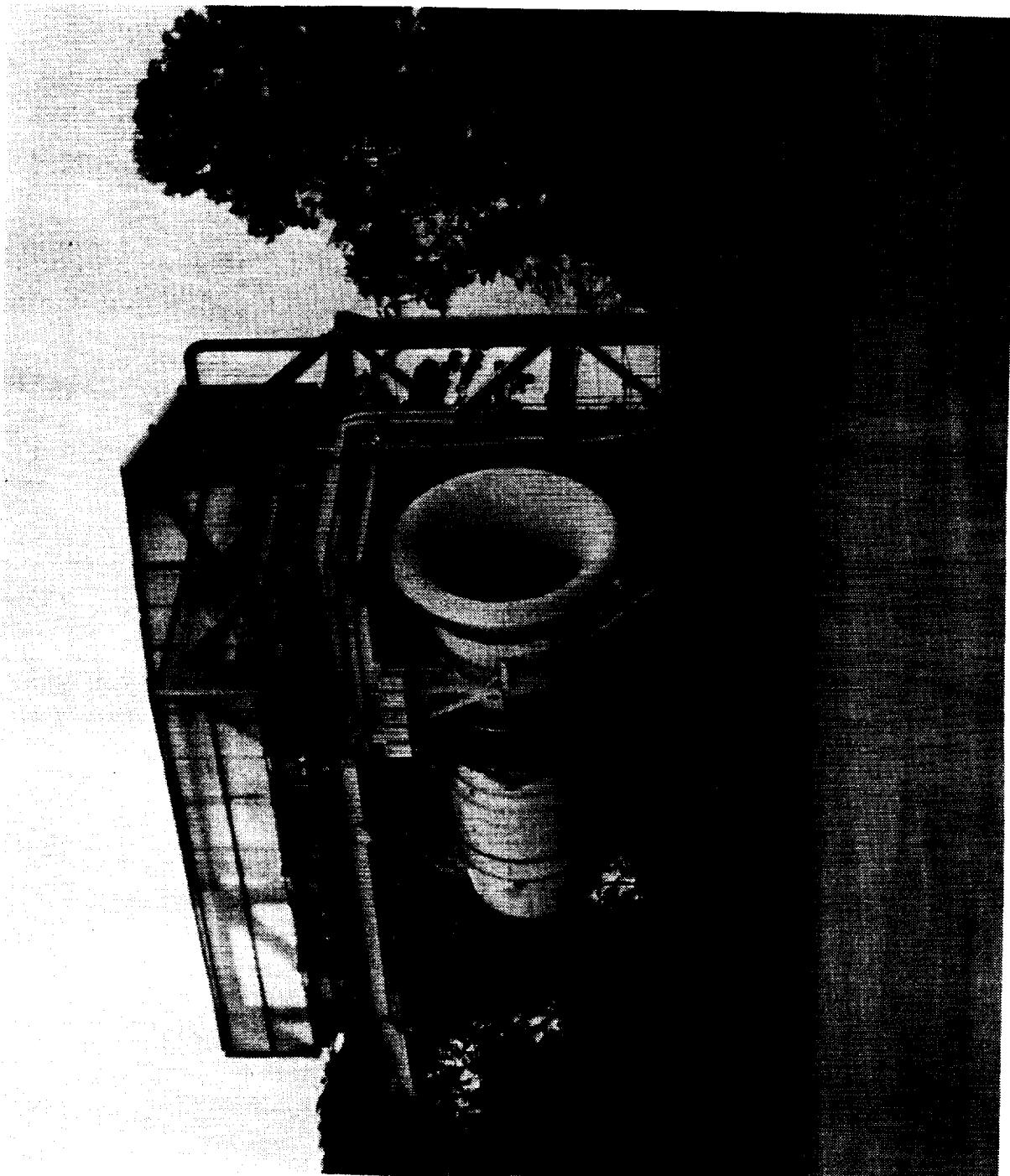


Figure V.1.3 Peebles Site IV-D Test Stand

All testing was performed at the General Electric Aircraft Engine Group, Peebles, Ohio, Site IVD test site. This acoustic arena consists of a 0.15 meter (6 inch) thick concrete test pad and a 3.96 meter (13 ft.) high engine centerline test stand (Photograph V.1.3).

## 5.2 INSTRUMENTATION

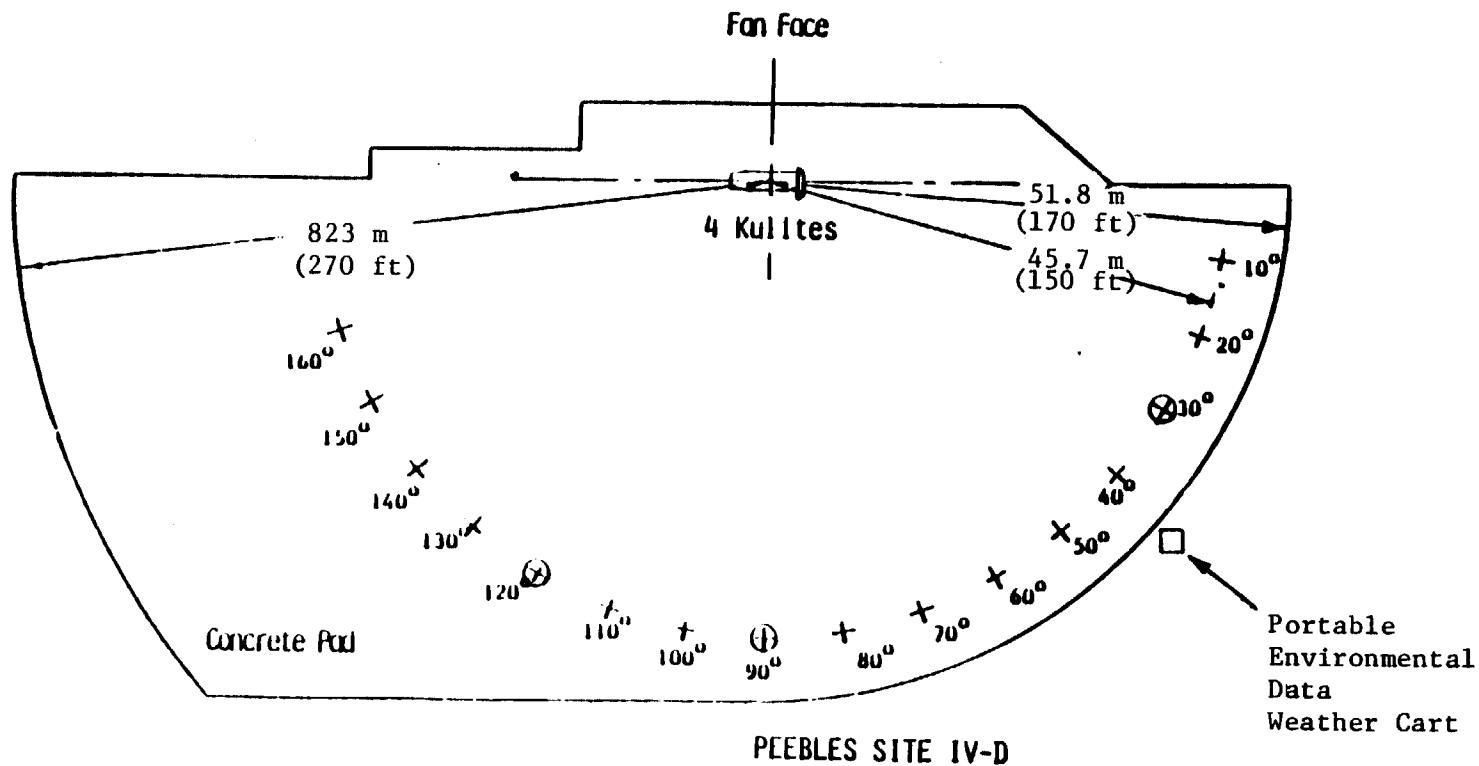
Nineteen 45.7 meter (150 ft.) arc microphones and four in-duct dynamic pressure transducers were recorded on a 28 track FM tape recorder, along with fan speed, core speed, time code and a reference oscillator. Sixteen of the 45.7 meter arc microphones were positioned every 10° in a polar angle measured from the inlet centerline, from 10° to 160° (Brue & Kjaer 1.27 cm dia., Model 4134) pointing towards the ground, 0.64 cm (1/4-inch) above the center of a metal plate which was glued to the concrete test pad (Figure V.2.1). The other three microphones (also Brue & Kjaer Type 4134) were pointing upwards 3.96 meters (13 ft.) above the concrete surface at 30°, 90°, and 120° (Photographs V.2.2 and V.2.3). The dynamic pressure transducers were located at the positions defined in Table V.2.1.

The nineteen microphone signals were preamplified through transistorized cathode followers (Brue & Kjaer Type 2619), powered by Brue & Kjaer Type 2801 power supplies. The preamplified signals are then fed through approximately 230 meters (750 ft.) of coaxial cable into the tape recording room of the Site IV control building. Here, the signals are fed into variable gain amplifiers with gains settings ranging from -10 dB to +60 dB in 10 dB steps for normalizing incoming signals into the optimized dynamic range of the tape recorder. The tape recorder used was a Honeywell 9600, 28 track FM recorder. The recorder was set up for Wideband Group I at 30 ips tape speed.

The four dynamic pressure transducers are of the piezo-resistive bridge type excited by a 10vdc power supply. As low signal strengths were expected, 20 dB of gain was provided before the signals were fed through approximately 250 meters (820 ft.) of coaxial cabling into the tape recording room. As with the microphone signals, the induct transducers were fed through a second set of variable gain amplifiers and were recorded on the Honeywell 9600 tape recorder.

Figure V.2.1  $E^3$  Test Setup

- No TCS
- With Vortex Destroyer
- Engine Centerline 3.96 m (13 ft)



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CHAPTER V.2  
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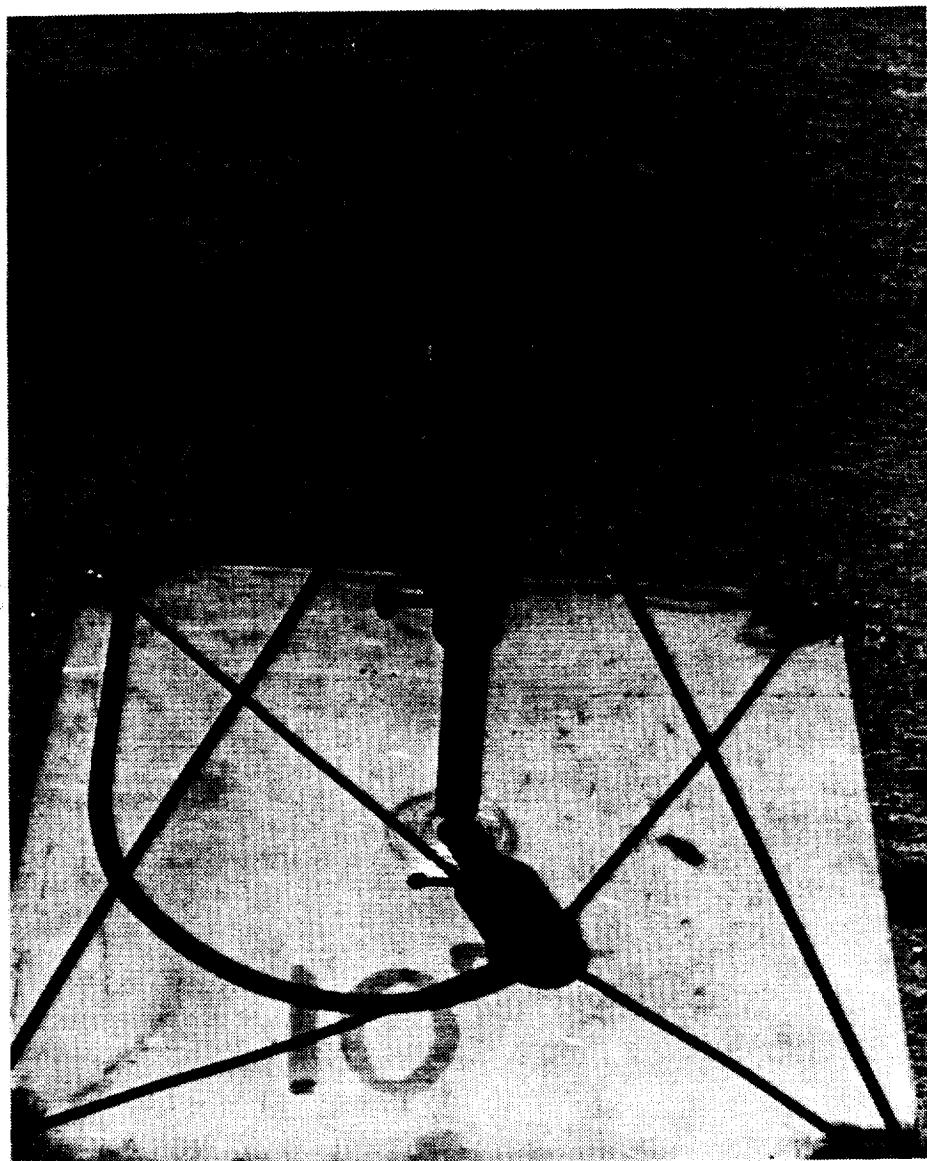
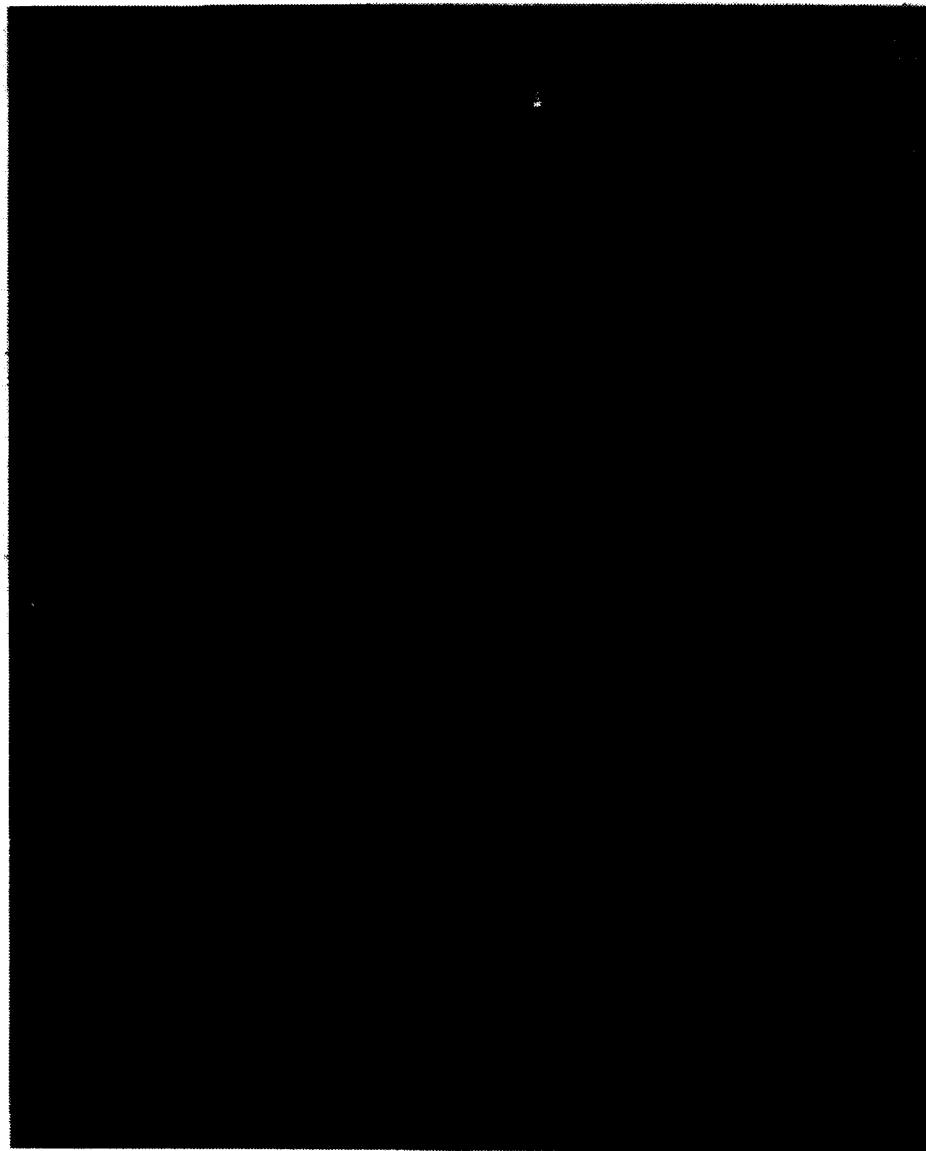


Figure V.2.2 Ground Plane Microphone Installation

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**Figure V.2.3   Centerline Microphone Installation**

TABLE V.2.1  
DYNAMIC PRESSURE TRANSDUCERS

<u>Approximate Station No.</u>	<u>Approximate Circumferential Position (°ALF)</u>	<u>Transducer Type</u>	<u>Description</u>
114	30	Kulite XCS-190-15	10-32 bolt
151.8	30	Endevco 8507-15	Panel Bolt Probe
204.8	84	Kulite XCS-190-15	10-32 bolt
286.7	84	Kulite XCS-190-15	10-32 bolt

All 1/3 octave analysis were performed on a General Radio 1921 1/3 octave analyzer. Integration time was set for 32 seconds. The digitized 1/3 octave levels are passed through an interface computer from the analyzer and stored on the General Electric Aircraft Engine Group's Honeywell 6000 computer for further processing. Post processing included correction for microphone and amplifier system response and corrections to standard day [25°C (77°F), 70% RH] atmosphere conditions using the SAE ARP 866A recommended procedure (Reference 11).

All narrowband, enhanced waveform, and probability density analyses processing were performed at the General Electric Aircraft Engine Business Group's Acoustic Data Analysis Center (ADAC). This center is equipped with a DEC PDP11-34A based digital signal processing system (Photograph V.2.4).

Wind speed and direction, along with temperature and relative humidity were measured at the engine site using the General Electric Portable Environmental Data System (PEDS). Wind speed and direction were measured at 0.3 meters (1 ft.) and at 3.96 meters (13 ft.). Temperature and relative humidity were measured at 3.96 meters (13 ft.).

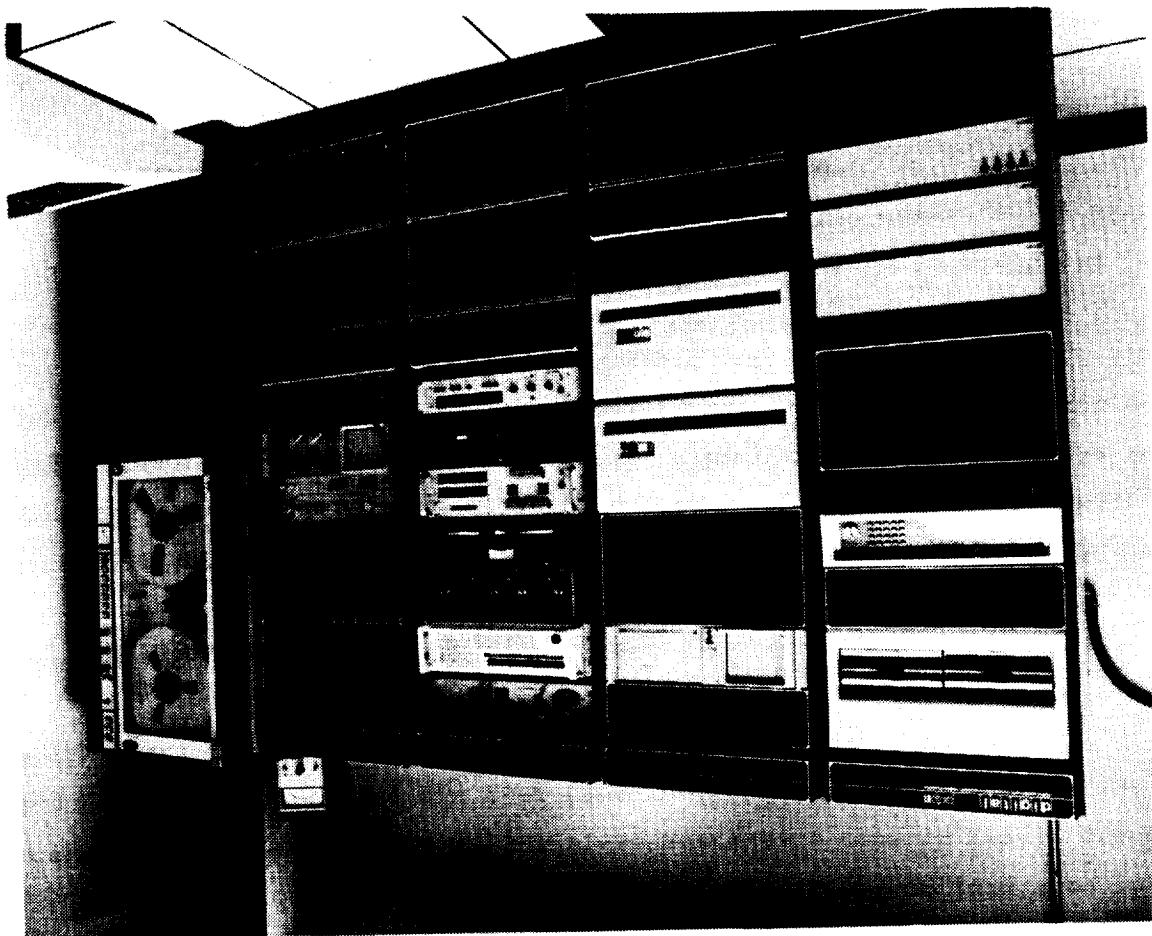
Acoustic shadowing of the ground plane microphones were monitored on-line during testing and verified with post-test data reduction to ensure that all data acquired was not contaminated by shadowing effects. Shadowing was considered to be present when the difference between the high and low microphones in the one-third octave bands between 5kHz and 8kHz was beyond the range of  $3 \pm 1.5$  dB.

### 5.3 ICLS DATA

#### 5.3.1 FARFIELD ONE-THIRD OCTAVE DATA

The ground plane data were averaged by taking all of the runs and repeats, normalizing the RPM differences using a correction determined from a second order localized curve fit for the data, then arithmetically averaging the corrected data to find an estimate of the mean of the distribution. Six

Figure V.2.4 Acoustic Data Analysis Center



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dB was subtracted from these ground plane averages to simulate free field conditions. A typical tabulation of the statistical standard deviation for the data is given in Table V.3.1 for a sample size of 3.

### 5.3.2 FARFIELD NARROWBAND DATA

All narrowbands were digitally processed on the ADAC system with a 1024 line analysis, valid 0 to 10 KHz, with a Hanning window, giving an effective bandwidth of 18.75 Hz. A total of 100 ensemble averages were taken, yielding an estimate of the normalized random error of the narrowband levels to be 0.4 dB. The 45.7 m (150 ft.) arc ground plane narrowband spectra levels are displayed for configuration 1, one pass through the fan speed operating line, in Appendix 9.2.1.a to 9.2.8.p.

### 5.3.3 FARFIELD ENHANCED WAVEFORM DATA

Enhanced Waveform Analysis is a digital processing technique designed to improve the signal to noise ratio of a sinusoidal signal, in the presence of high random (Gaussian) background noise. The procedure requires the averaging of the digitized time domain signal before it is Fourier transformed, and it is accomplished using the following process (Reference Figure V.3.3.1):

- The analog time domain signal from a microphone is digitized, with the digitization for each ensemble commencing concurrently with a once-per-rev signal from the low speed rotor.
- Each ensemble element is arithmetically averaged with all of the other ensembles corresponding elements, yielding a mean time domain ensemble.
- The mean time domain ensemble is Fourier transformed, squared, and logarithmically converted.

Table V.3.1

16019EQ/NRB/RPMAVG

11/14/83 8.935 PAGE 2

## STANDARD DEVIATIONS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

## IDENTIFICATION

AVERAGE - CIAE103G/P 1 1620AO

INPUT - CIAE103G/P 1 X02510 CIAE103G/P 1 X02600  
CIAE103G/P 1 X02370

## ANGLES MEASURED FROM INLET, DEGREES

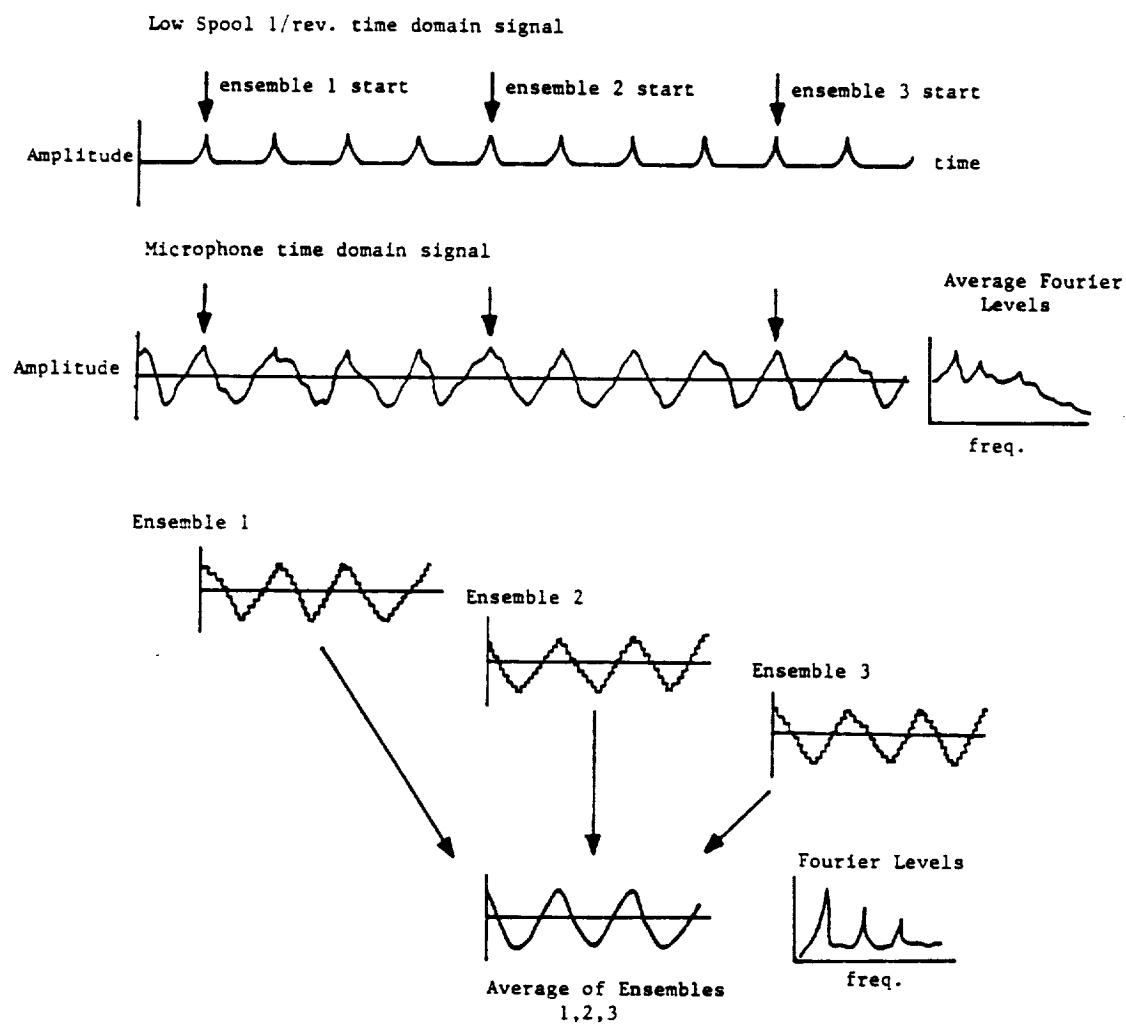
FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
60	0.03	0.66	0.95	1.39	1.13	1.25	1.09	0.95	0.90	1.30	1.46	0.95	0.43	0.36	0.25	0.38	0.57	
63	0.18	0.63	0.80	1.42	1.09	1.01	0.50	0.89	1.38	0.90	1.09	0.80	0.43	0.14	0.01	0.29	0.49	
80	0.18	0.14	0.52	0.58	0.63	0.66	0.58	0.38	0.66	0.75	0.52	0.50	0.43	0.52	0.66	0.63	0.52	
100	0.35	0.38	0.67	0.38	0.80	1.01	0.52	0.58	0.66	0.76	0.43	0.38	0.38	0.25	0.43	0.50	0.43	
125	0.35	0.50	0.58	0.25	0.38	0.29	0.25	0.29	0.14	0.52	0.38	0.14	0.14	0.29	0.29	0.29	0.20	
160	0.18	0.38	0.58	1.01	0.80	1.64	1.04	1.39	1.75	0.52	0.25	0.90	0.25	0.14	0.29	0.25	0.47	
200	0.05	0.38	0.58	2.18	1.32	2.70	1.89	2.32	3.28	1.38	0.52	1.56	0.13	0.14	1.01	0.63	0.98	
250	0.02	0.38	0.52	0.25	0.14	0.14	0.25	0.25	0.15	0.25	0.01	0.25	0.15	0.14	0.29	0.14	0.07	
315	0.18	0.38	0.29	0.86	0.52	0.29	0.52	0.25	0.25	0.14	0.15	0.29	0.25	0.29	0.29	0.38	0.24	
400	0.01	0.50	0.38	0.25	0.50	0.25	0.00	0.15	0.29	0.00	0.14	0.15	0.14	0.00	0.25	1.09	0.04	
500	0.18	0.38	0.29	0.43	0.58	0.38	0.50	0.38	0.58	0.29	0.14	0.52	0.25	0.38	0.29	0.14	0.18	
630	0.36	0.66	0.63	0.00	0.44	0.14	0.15	0.38	0.29	0.14	0.01	0.14	0.25	0.14	0.29	0.14	0.05	
800	0.17	0.75	0.25	0.14	0.38	0.43	0.43	0.25	0.38	0.01	0.15	0.15	0.15	0.15	0.38	0.00	0.25	0.25
1000	0.17	0.72	0.50	0.52	0.52	0.57	0.50	1.04	0.38	0.38	0.52	1.09	0.63	1.28	0.63	1.13	0.33	
1250	0.19	0.38	0.14	0.38	0.28	0.14	0.39	0.38	0.29	0.14	0.14	0.14	0.14	0.63	0.14	0.24	0.35	
1600	1.94	1.29	0.72	1.14	0.58	1.57	1.13	0.87	0.81	1.28	0.77	0.44	0.63	0.77	0.50	0.14	0.63	
2000	0.52	1.17	0.16	0.24	0.28	0.88	0.62	0.76	0.53	0.54	0.52	1.04	0.64	0.39	0.29	0.23	0.37	
2500	0.17	0.27	0.81	1.86	0.91	1.44	0.16	0.81	1.29	0.31	0.15	0.53	0.27	0.41	0.40	0.75	0.48	
3150	0.69	0.89	0.87	0.28	0.12	0.54	0.46	0.81	0.62	0.75	0.49	0.41	0.44	0.60	0.15	0.26	0.49	
4000	0.50	0.19	0.30	0.19	0.30	0.33	0.15	0.40	0.68	0.30	0.33	0.35	0.51	0.58	0.30	0.47	0.32	
5000	0.14	0.16	0.91	0.20	0.16	0.06	0.09	0.58	0.61	0.23	0.19	0.56	0.19	0.38	0.22	0.46	0.28	
6300	0.12	0.34	0.68	0.55	0.06	0.18	0.17	0.88	0.66	0.43	0.36	0.08	0.23	0.65	0.17	0.29	0.42	
8000	0.10	0.39	0.46	0.25	0.27	0.19	0.45	0.95	0.63	0.50	0.39	0.46	0.41	0.77	0.47	0.53	0.25	
10000	0.41	0.44	0.57	0.95	0.06	0.74	0.64	1.24	1.07	0.33	0.79	0.19	0.54	0.44	0.28	1.58	0.27	
QASPL	0.87	0.76	0.54	0.17	0.13	0.27	0.33	0.65	0.45	0.18	0.12	0.14	0.07	0.27	0.11	0.29	0.28	
PNL	1.03	0.67	0.55	0.12	0.24	0.61	0.38	0.58	0.55	0.28	0.24	0.09	0.07	0.32	0.05	0.44		
PNLT	1.41	0.98	0.77	0.33	0.25	0.51	0.55	0.71	0.35	0.58	0.06	0.38	0.26	0.42	0.19	0.59		
DBA	0.94	0.82	0.55	0.13	0.10	0.51	0.44	0.75	0.35	0.32	0.04	0.06	0.08	0.27	0.14	0.33		

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA	
CIAE103G/P 1	1620AO	06-07-83	PEBBLES 4D	150. FT ARC	1820.	9663.	SAE77	28.74	FULL SPHERE

GP MICS/FULLY TREATED/6DB FREEFIELD CORR./#21102

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Figure V.3.3.1 Example of Enhanced Waveform Technique



This analysis procedure can be used where turbomachinery noise is measured in the presence of high random inflow distortion, the contribution of interaction effects between, for instance, a rotor and a stator can be identified.

#### 5.3.4 PROBABILITY DENSITY ANALYSIS

Probability Density Analysis is the study of the amplitude distribution of a signal (see Reference 12). This is accomplished by digitizing the time domain signal from a microphone, computing a mean and standard deviation of the digitized amplitudes for each ensemble, then sorting the amplitude levels into mean and standard deviation normalized accumulators so that a probability density distribution can be determined.

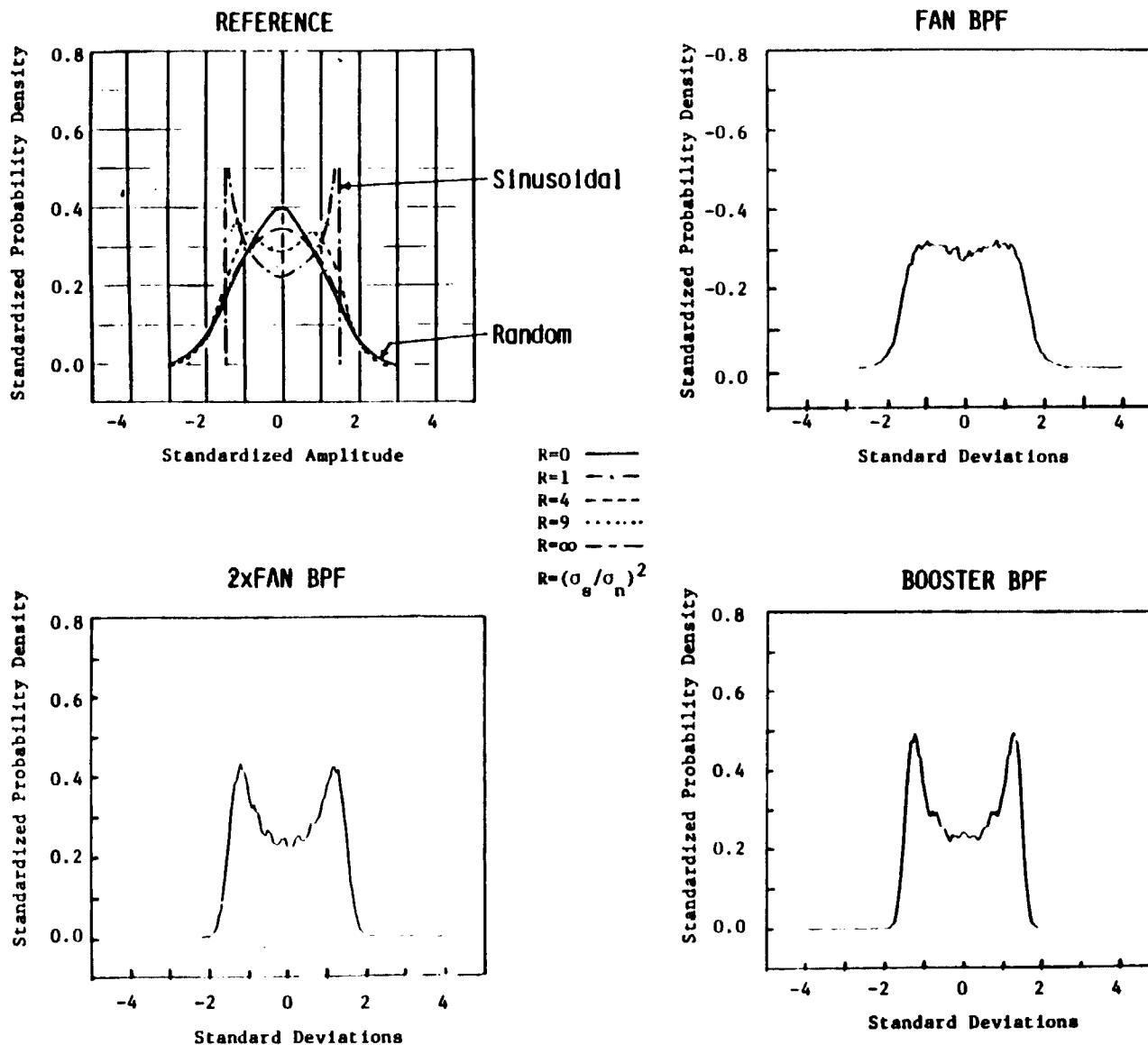
This procedure has the application that it can determine the random and sinusoidal content (i.e., signal-to-noise ratio) of a blade passing frequency tone or harmonic, by first isolating the tone with a tracking band pass filter, then determine the probability density distribution for the band passed time domain signal. If one makes the same assumption as in Section 5.3.3 that rotor/stator interactions are sinusoidal in nature, and rotor/turbulence interactions are random in amplitude as for the enhanced waveform, then the relative contribution to the tone levels for these two mechanisms can be identified.

Typical results of this procedure as used for the ICLS are given in Figure V.3.4.

#### 5.3.5 IN-DUCT DYNAMIC PRESSURE TRANSDUCER NARROWBANDS

The in-duct dynamic pressure transducer narrowbands for Configuration 1 are in Appendix 9.3. All narrowbands are digitally processed with a 1024 line analysis, valid 0 to 10 KHz with a Hanning window, giving an effective bandwidth of 18.75 Hz. A total of 100 ensemble averages were taken, yielding an estimate of the normalized random error of the narrowband levels to be 0.4 dB.

Figure V.3.4 Probability Density Analysis of  $70^{\circ}$  45.7 m Microphones for Config. 1



## 5.4 TREATMENT EVALUATION

The acoustic suppressive treatments used on the ICLS engine are all of the fibrous bulk absorber type with characteristics summarized in Figures V.1 and V.4.

Two different techniques were used to select the optimized treatment designs. The approach adopted for designing the inlet treatment was developed by Dr. E. J. Rice at NASA-Lewis (Reference 13). This method allows determination of the optimum impedance values and the corresponding suppressions from the knowledge of the cutoff ratio, the flow Mach number, the shear layer thickness ratio, the lined length ratio, and the duct diameter to wavelength ratio. The design approach adopted for the fan exhaust was purely empirical. It was based on the optimum impedance curves derived from a series of laboratory tests carried out in a curved duct representing a segment of a fan exhaust duct.

### 5.4.1 PORTABLE IMPEDANCE MEASUREMENT SYSTEM EVALUATION (PLUNKER)

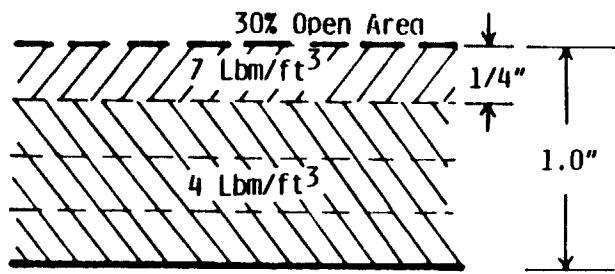
Prior to any testing of the engine, and prior to acoustical testing of the engine, the acoustic impedance properties of the engine treatment panels was quality insured to be to design intent using General Electric's non-destructive, portable impedance measurement system (Plunker). The Plunker is a short tube, driven by a speaker, with two dynamic transducers to evaluate the direct and reflected pressure waves, thereby determining the real and imaginary parts of the acoustical impedance characteristics of a treatment sample placed normal to the tube (Reference Figure V.4.1.1).

The results of these tests confirmed that the acoustical impedance properties were as intended, and they did not degrade with approximately 43 hours of engine running time. Figure V.4.1.2 shows a typical example of the normal impedance characteristics of the fan exhaust duct evaluated at six different locations prior to engine testing.

Figure V.4 E<sup>3</sup> ICLS Acoustic Treatment

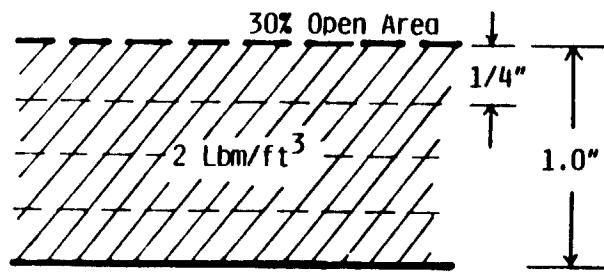
FAN INLET

- KEVLAR MAT \*



FAN EXHAUST

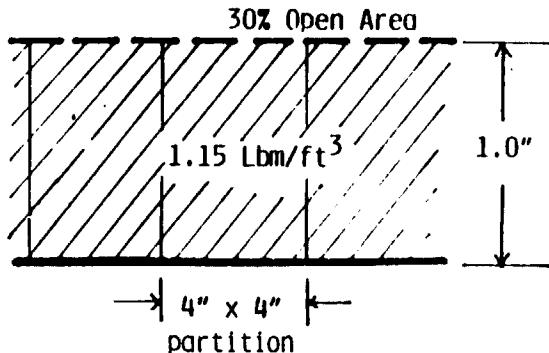
- KEVLAR MAT \*



\*Note: All Kevlar Mat is coated with ZEPEL to repel water.

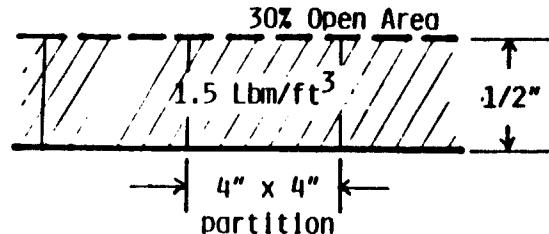
CORE COWL

- ASTROQUARTZ



TURBINE REAR FRAME

- ASTROQUARTZ



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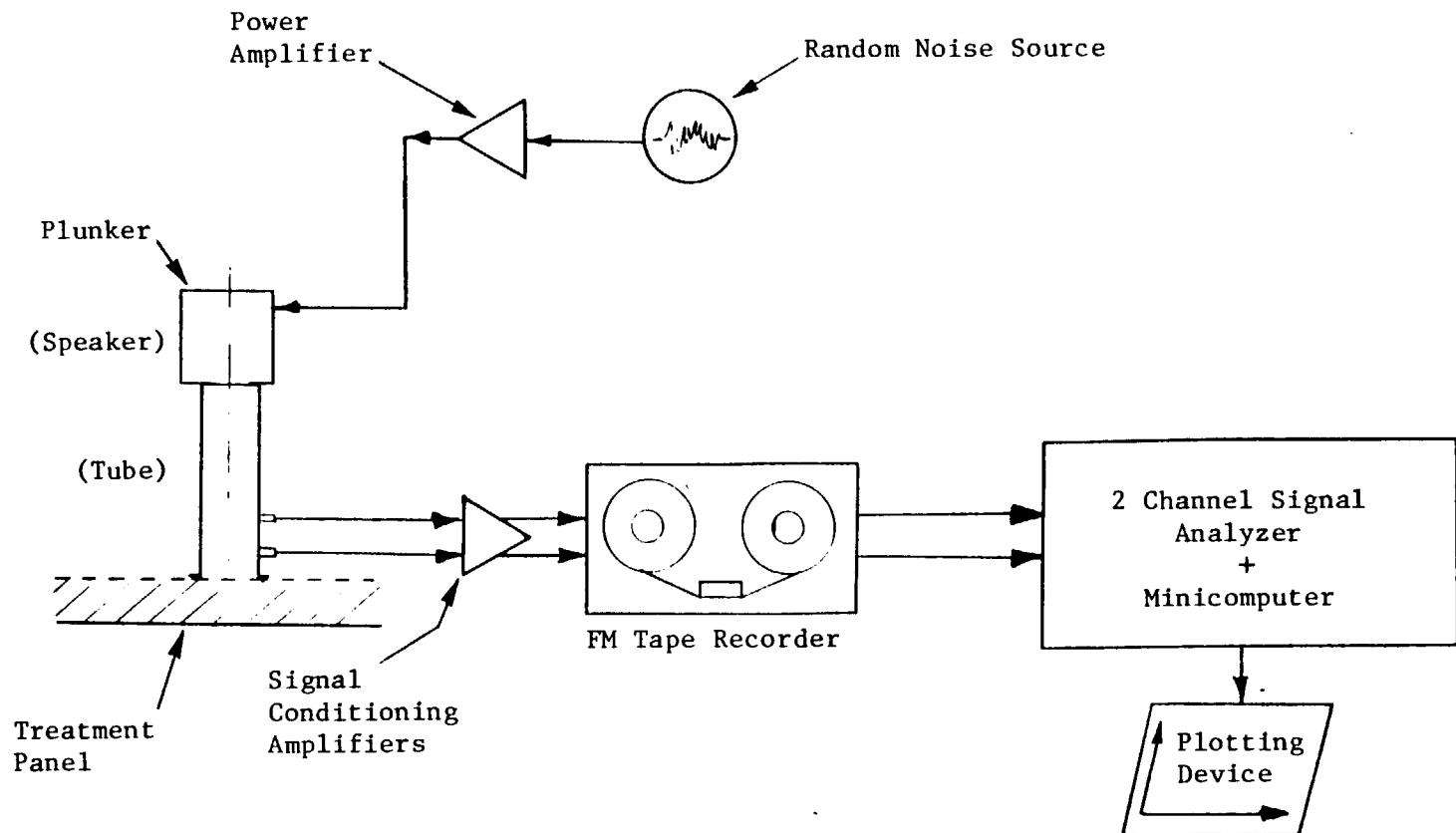
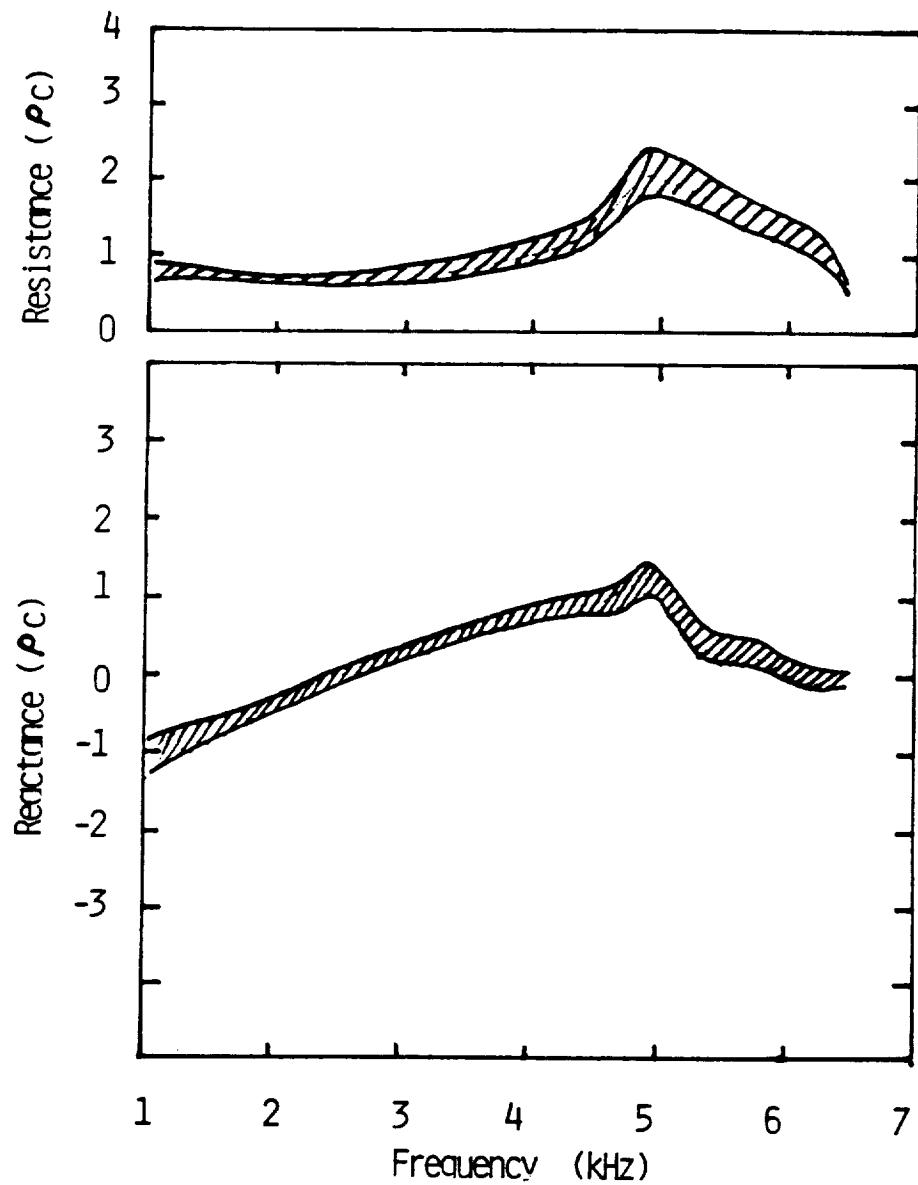


Figure V.4.1.1 Plunger System Used for Quality Assurance of  
ICLS Engine Treatment Panels

Figure V.4.1.2  $E^3$  Fan Exhaust Duct. Plunker Measurements on the 2 lb/cu.ft. Kevlar-filled treatment panels on the inner and outer surfaces of the duct.  
(The shaded area shows the data scatter of 6 different measurements.)



#### 5.4.2 FARFIELD TREATMENT EVALUATION

The benefits of acoustic treatment on farfield levels was obtained by comparing the averaged 45.7 meter arc data projected to 1,000 ft. level fly-over of the different test configurations. Specifically, each treatment section effectively was appraised using the following comparisons:

Inlet	:	Configuration 3 - Configuration 1
Half-Treated Inlet	:	Configuration 3 - Configuration 2
Exhaust	:	Configuration 4 - Configuration 1

Descriptions of the test configurations are reported in Table V.1.1, and the results of these comparisons are shown in Table V.4.2.1

#### 5.4.3 IN-DUCT TREATMENT EVALUATION

The differences between upstream and downstream dynamic pressure measurements as made for the fully treated (Configuration 1) case, corrected by the differences determined by the hardwall (Configuration 4) case, gives an independent measure of the treatment effectiveness. The results are summarized in Figure V.4.3.

### 5.5 FLIGHT PROPULSION SYSTEM PROJECTION

The ICLS engine levels were projected to the conditions of the flight propulsion systems using the procedures discussed in the following sections. Assuming the Flight Propulsion System (FPS) has the same treatment effectiveness as that of ICLS, the resultant levels for the four study aircraft are given in Table V.5.

#### 5.5.1 STATIC DATABASE CONSTRUCTION

To accurately project the ICLS engine static noise levels to FPS flight conditions, the composite system levels needed to be segregated into its separate primary components: fan noise, turbine noise, booster noise, jet noise, and combustor noise. This was accomplished using the procedures schematized in Figure V.5.1.1.

**TABLE V.4.2.1**  
**TREATMENT EFFECTIVITY**  
**Static Data Projected to a Level Flyover**

**ΔEPNL**

- Inlet Evaluated (Configuration 3-1)
- Half Inlet Evaluated (Configuration 3-2)
- Exhaust Evaluated (Combination of Configurations (1 and 4) - 1; i.e., ~ Treated Inlet

N1K	(RPM)	<u>APPROACH</u>				<u>TAKEOFF</u>	
		Alt. 400 Ft. V <sub>ac</sub> 226 Ft./Sec.				Alt. 1,000 Ft. V <sub>ac</sub> 255 Ft./Sec.	
1820		1820	2030	2180	2320	2800	3100
Inlet	(ΔEPNdB)	2.9	5.6	5.0	3.9	4.6	2.2
Half Inlet	(ΔEPNdB)	2.6	4.3	3.4	3.1	4.3	1.0
Exhaust	(ΔEPNdB)	2.0	2.5	2.7	2.9	1.9	1.2

Figure V.4.3  $E^3$  Fan Exhaust Suppression Predicted vs. Measured

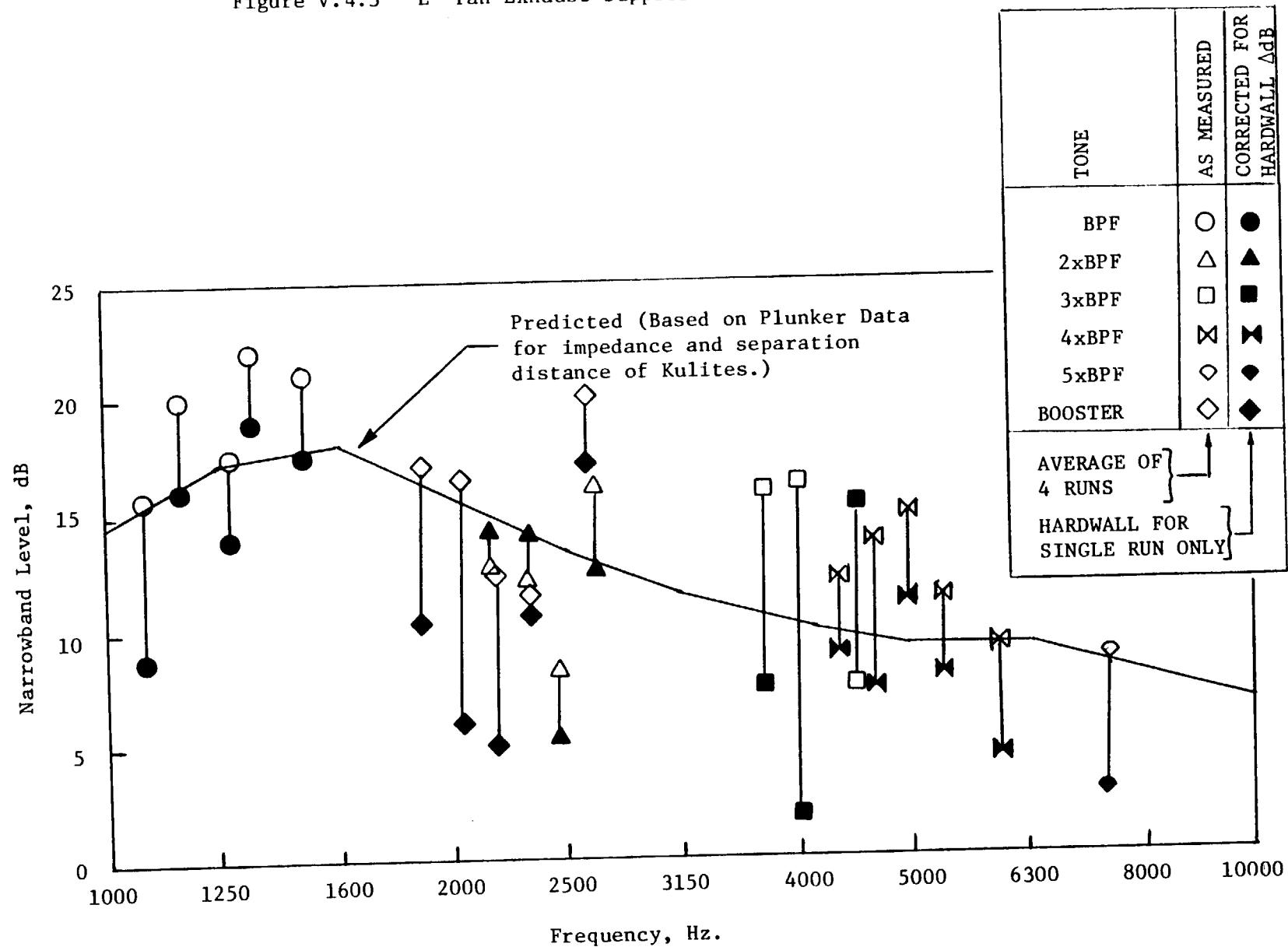
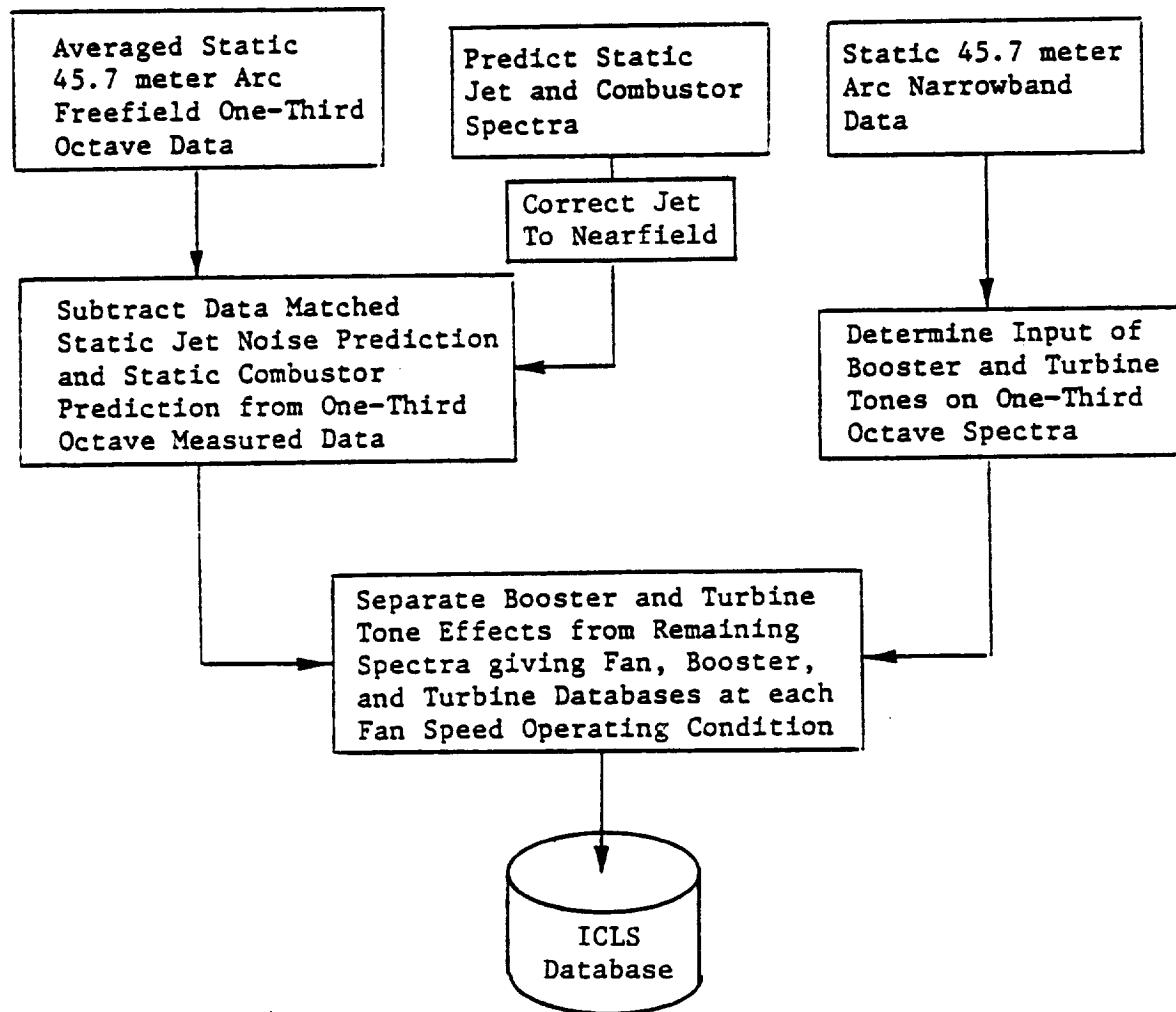


TABLE V.5  
EPNL FLIGHT NOISE ESTIMATES FOR E<sup>3</sup> AIRCRAFT

	Boeing Twinjet SLS F <sub>n</sub> = 37,710 lb. <u>TOGW = 243,660 lb.</u>	Douglas Trijet SLS F <sub>n</sub> = 41,230 lb. <u>TOGW = 497,000 lb.</u>	Lockheed Trijet SLS F <sub>n</sub> = 40,757 lb. <u>TOGW = 452,857 lb.</u>	Lockheed Quadjet SLS F <sub>n</sub> = 37,767 lb. <u>TOGW = 626,841 lb.</u>
Takeoff Level	90.9	96.5	94.8	99.1
Margin re: FAR36 (1978)	2.9	4.4	5.6	5.1
Sideline Level	91.6	94.4	92.8	93.6
Margin re: FAR36 (1978)	6.6	6.5	7.7	8.1
Approach	100.2	100.5	99.9	99.7
Margin re: FAR36 (1978)	1.7	3.8	4.1	5.3
Airframer Supplied Aircraft Noise	93.2	92.3	95.9	96.0

Figure V.5.1.1 Database Construction Flowchart



First, the static jet and combustor levels are predicted using the procedures discussed in SAE ARP 876B (Reference 14) and the engine performance cycle as determined at the time of testing. These predicted levels are logarithmically subtracted from the averaged freefield 45.7 meter arc one-third octave data (as tabulated in Appendix 9.1).

Next, the booster and turbine tones are identified in the narrowband spectra based on blade counts (Reference Figure V.5.1.2) and physical fan speeds. The one-third octave contribution of these tones are determined, and their effect is removed from the averaged 45.7 meter arc one-third octave data with the combustor and jet noise components removed.

The net result of this analysis is the generation of three separate component databases:

- Fan noise database
- Booster tone database
- Turbine tone database

The FPS fan noise database was obtained by scaling the previously determined static fan noise database, correcting for cycle differences in fan total weight flow and fan tip speed between the ICLS and FPS engines. The scaling procedures used were based on General Electric's commercial engine experience.

The FPS booster and turbine databases are the unscaled component databases as determined in the previous paragraphs, selected to have a slightly higher tip speed than the FPS target tip speed. This selection tends to slightly overpredict the levels, for a more conservative estimate of the margins expected relative to the FAR 36 Stage III rule.

#### 5.5.2 FAN NOISE FLIGHT CLEANUP DETERMINATION

As the ICLS engine was tested statically without a turbulence control structure, strong inlet turbulence distortions generated abnormally high fan tone levels as compared to what is expected in flight. Based on General

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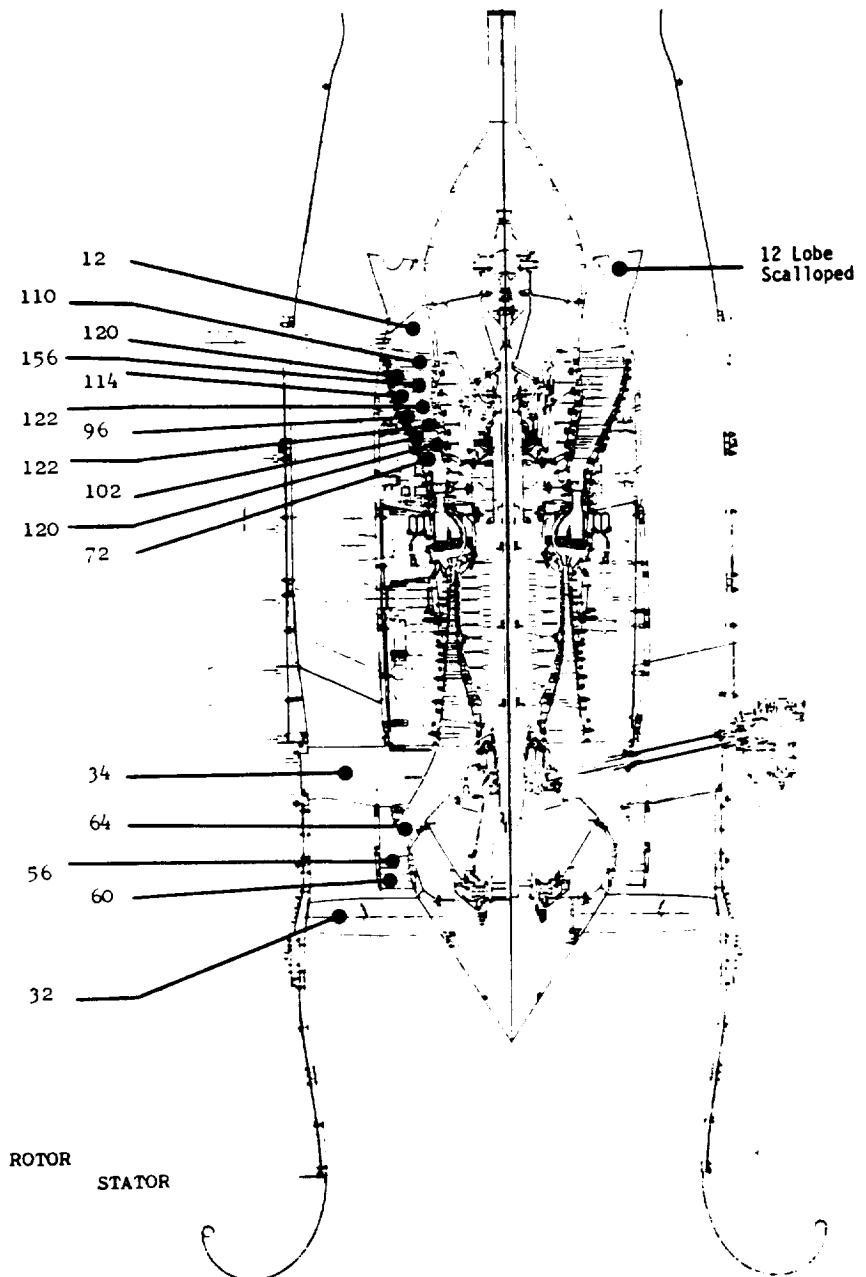


Figure V.5.1.2  $E^3$  ICLS Blade Counts

Electric's commercial turbofan experience, it has been found that modern signal processing techniques, such as those discussed in Sections 5.3.3 and 5.3.4, accurately identify the relative contribution of the turbulence distortions, so that their effect can be isolated from the data. These contributions can be summarized in a table of corrections, based on the assumption that flight turbulence levels are significantly reduced, or "cleaned up" (Reference Table V.5.1).

These corrections have been determined for each individual speed tested, then they were averaged over two speed regimes to improve the statistical significance of the estimate. Two speed regimes were selected as the directivity characteristics of fan noise source change due to the extremity of operating conditions.

#### 5.5.3 FPS FLIGHT PROJECTION PROCEDURE

The flight FPS jet and combustor noise components were predicted using the methods discussed in Reference 14 and the projected FPS performance cycle. The predicted jet and combustor, along with the FPS fan, booster, and turbine components were projected individually to flight using corrections for spherical divergence, air attenuation, Doppler shifting, and dynamic amplitude effects. The flight projected components are then summed and an Effective Perceived Noise Level (EPNL) is calculated.

#### 5.5.4 COMPARISON TO PRETEST PREDICTION

Predicted fully treated and measured noise levels are shown as a function of angle from the engine in Figure V.5.4.1 to V.5.4.8. Data is presented for three test configurations over a range of fan speeds. In Figures V.5.4.9 to V.5.4.14, the frequency distributions are shown for 60° and 120° angles for selected fan speeds.

The measured ICLS test data show that the overall engine's acoustic performance was, in general, as expected. However, there are three minor areas where the pretest predictions did not match the data as well as the:

**TABLE V.5.1**

**FAN NOISE FLIGHT "CLEANUP" CORRECTIONS**

Angle	Approach		Takeoff	
	BPF	2BPF	BPF	2BPF
10°	5.6	5.4	4.8	5.8
20°	5.8	4.3	5.5	3.8
30°	4.7	3.4	5.5	5.3
40°	4.6	4.1	5.3	6.4
50°	4.9	2.0	5.3	3.5
60°	5.1	2.9	5.1	3.0
70°	2.9	1.6	4.4	2.1
80°	3.2	1.3	3.9	2.1
90°	1.6	1.5	2.6	1.1
100°	1.6	1.1	2.3	1.4
110°	1.8	1.4	1.8	.9
120°	2.1	1.5	2.1	.7
130°	2.4	1.0	1.7	.7
140°	2.2	1.8	1.7	.4
150°	2.0	1.6	2.6	.6
160°	2.8	1.6	3.5	.8

Figure V.5.4.1

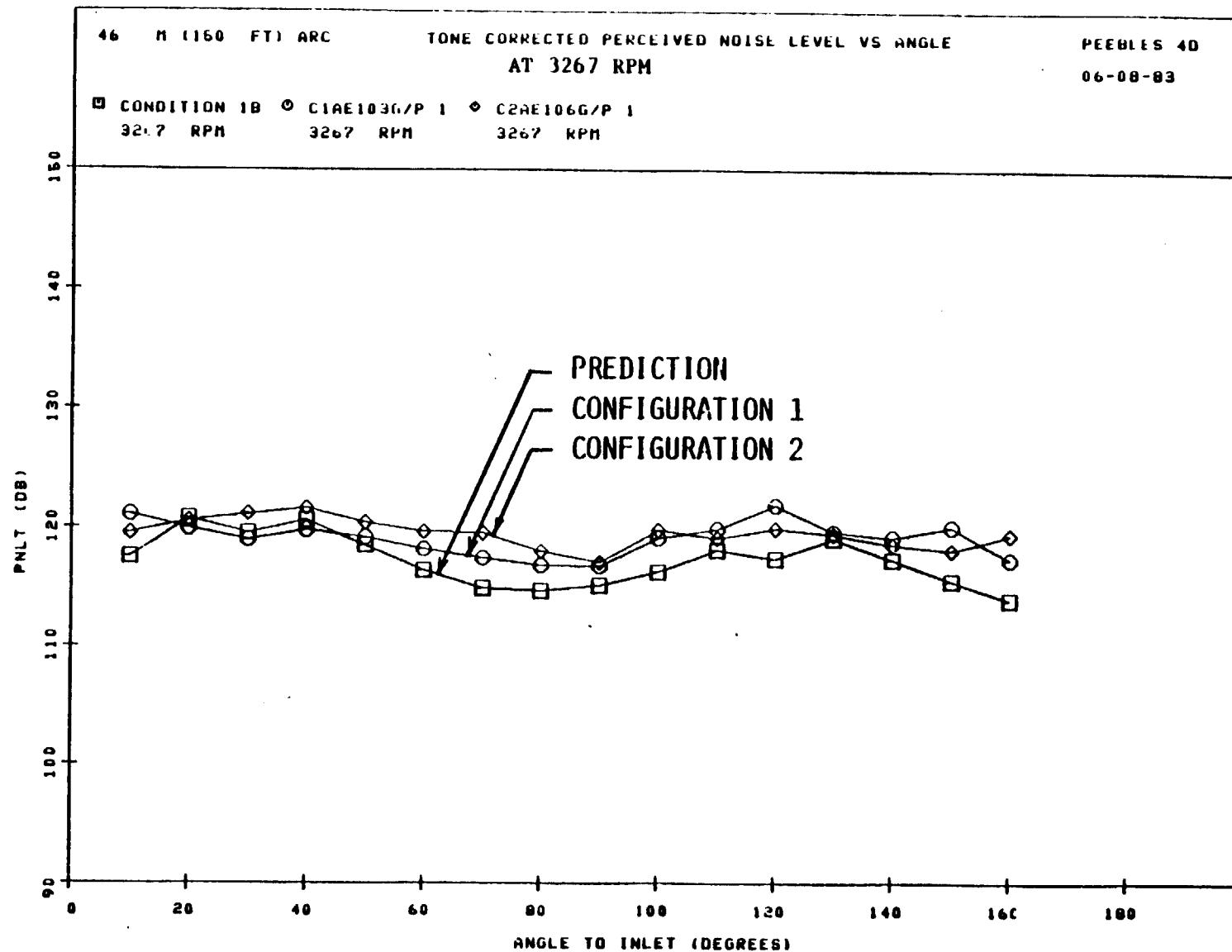


Figure V.5.4.2

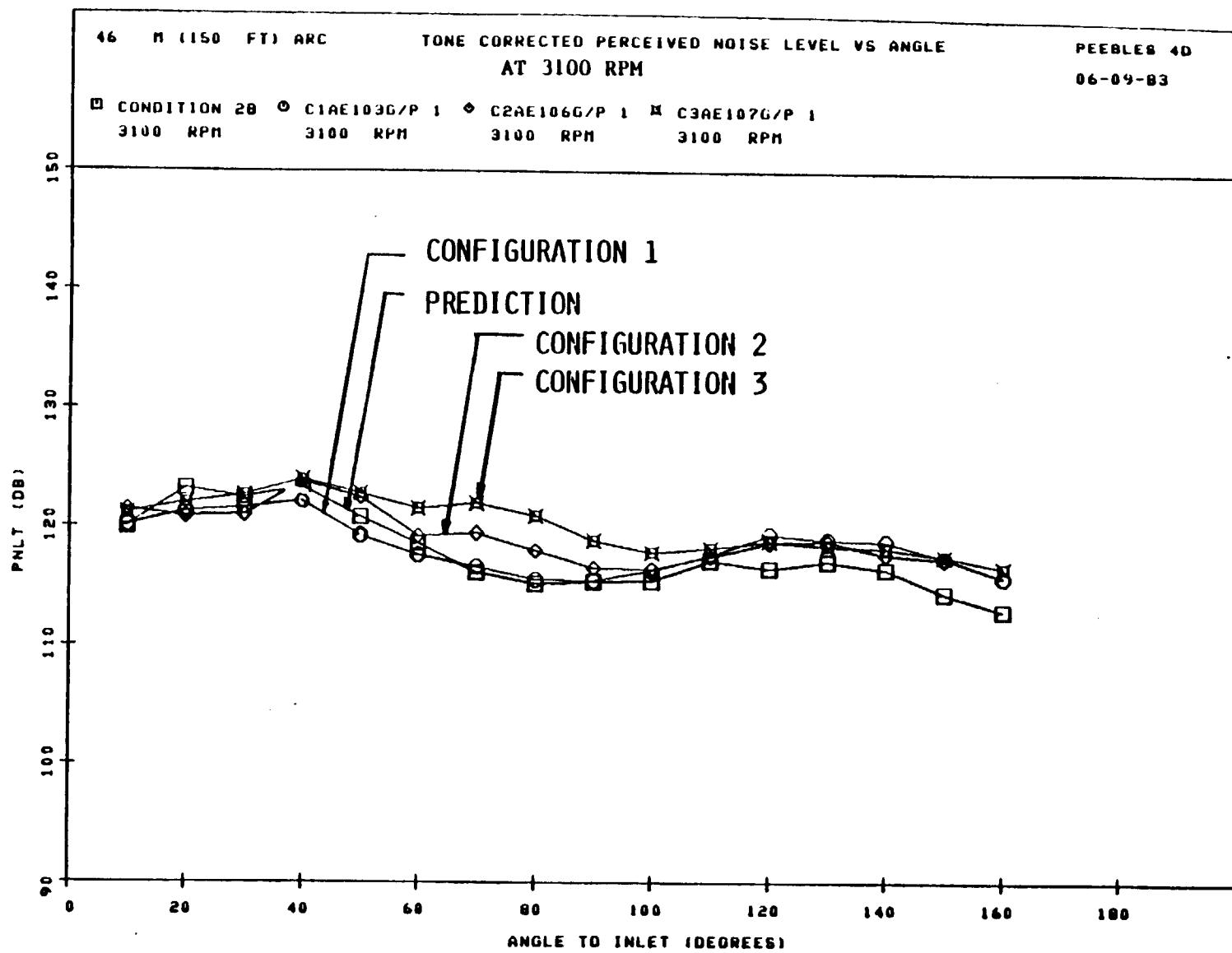


Figure V.5.4.3

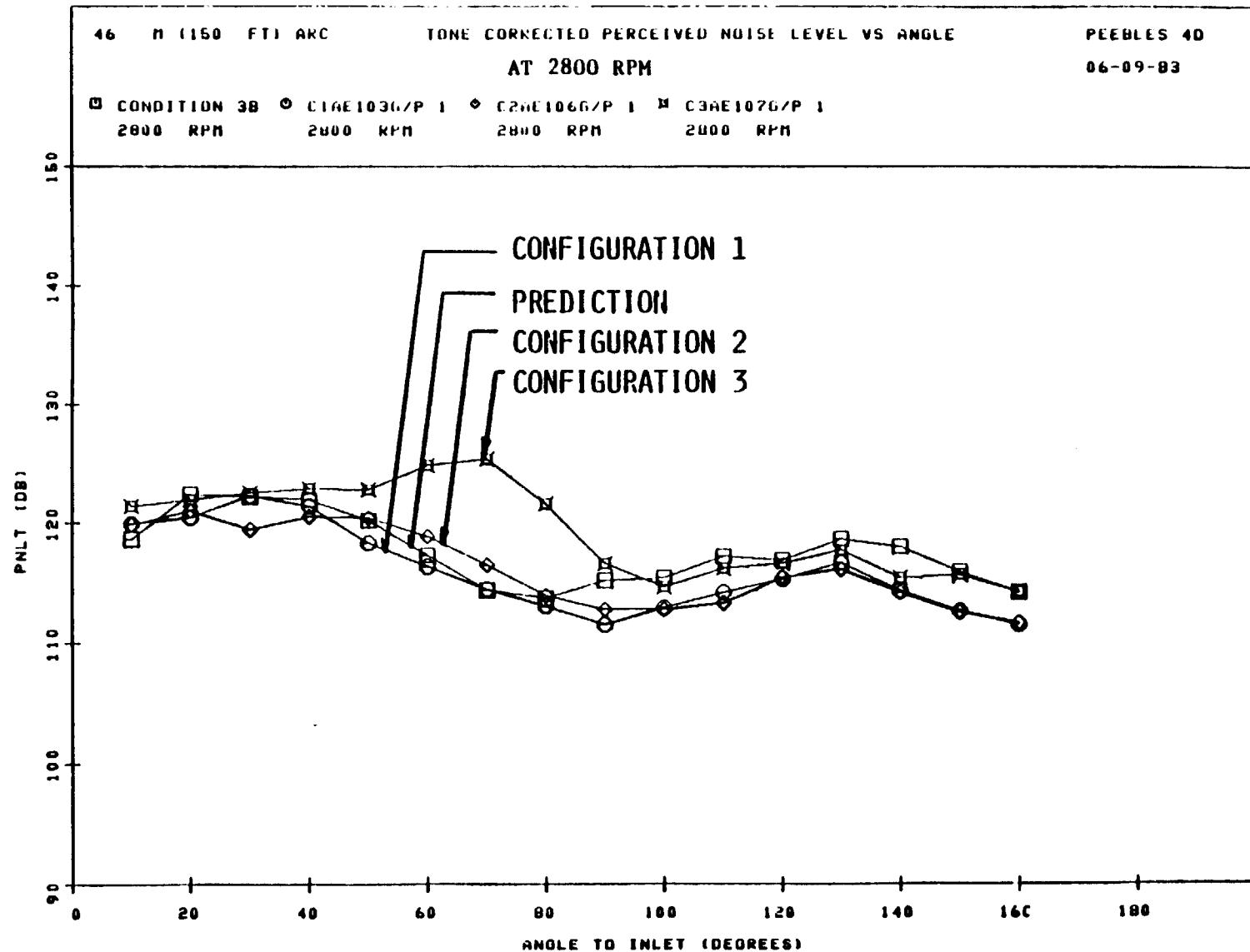


Figure V.5.4.4

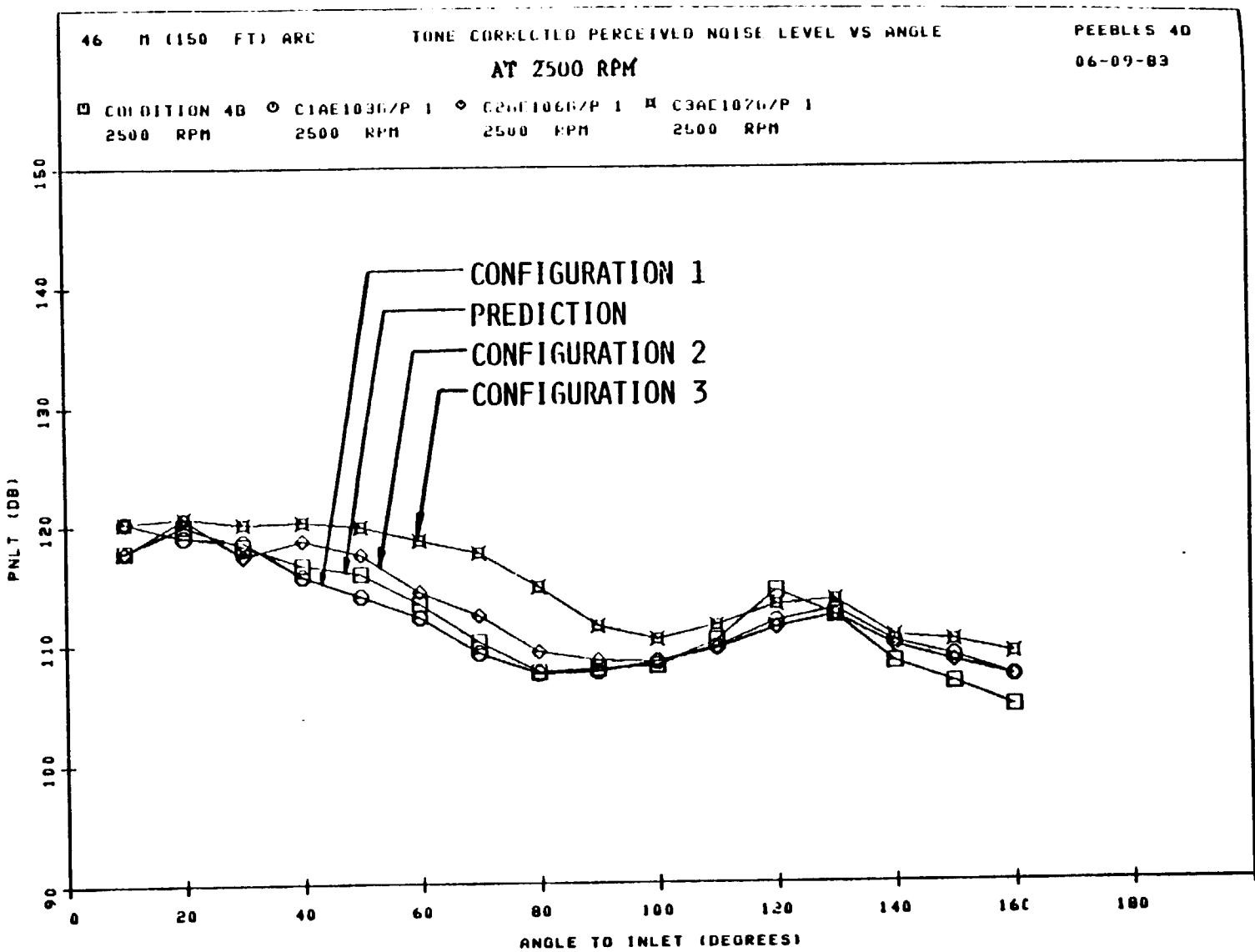


Figure V.5.4.5

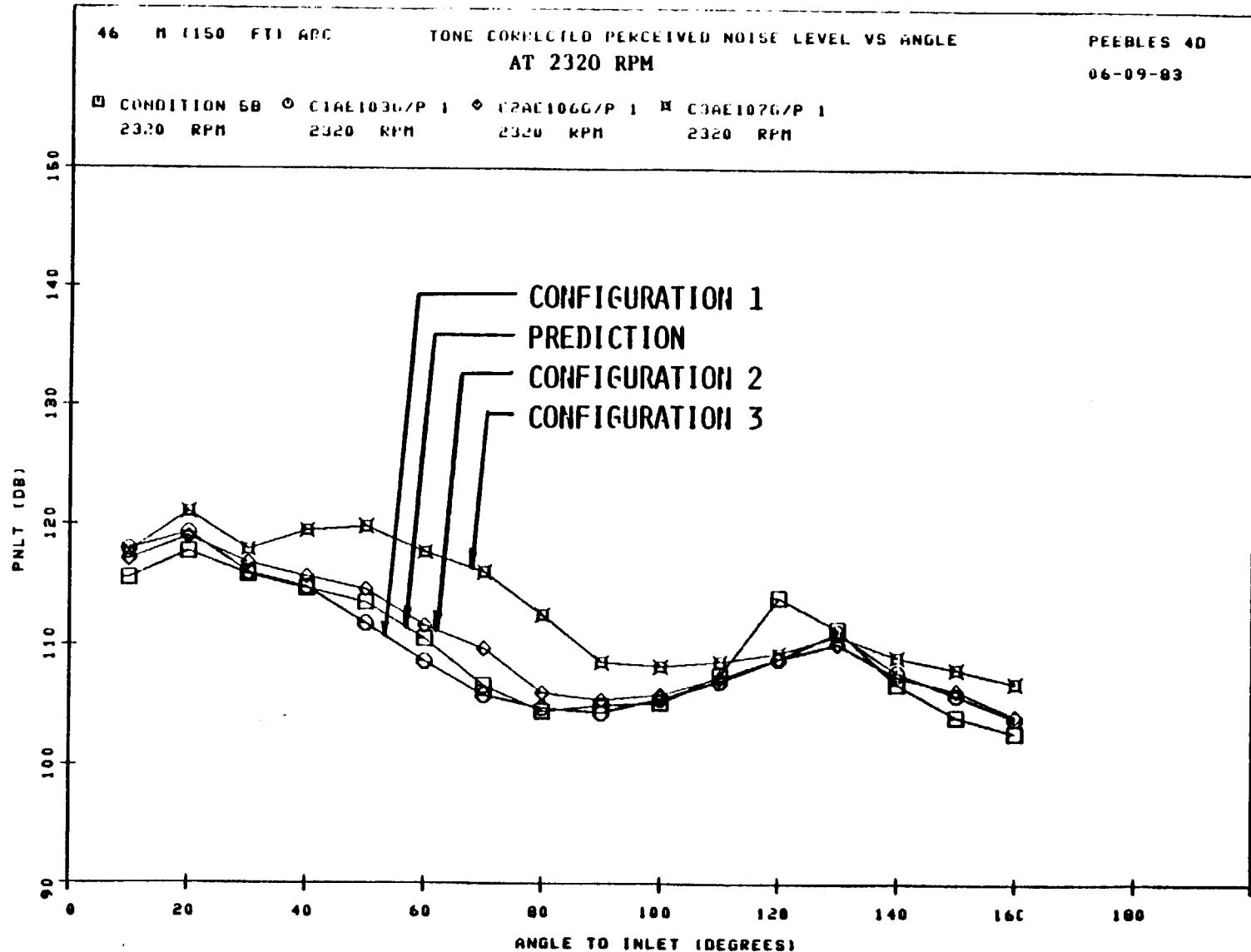
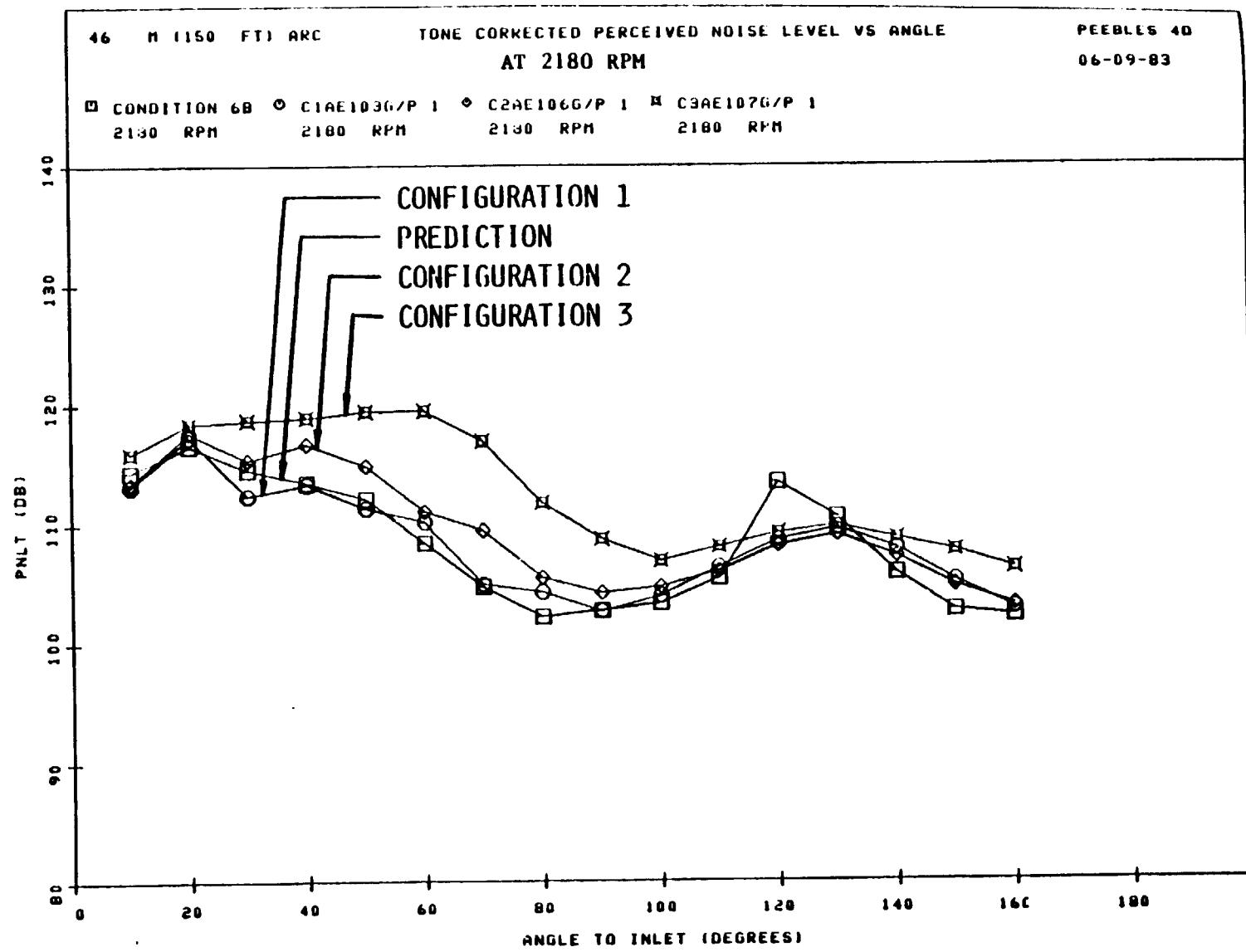
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Figure V.5.4.6



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Figure V.5.4.7

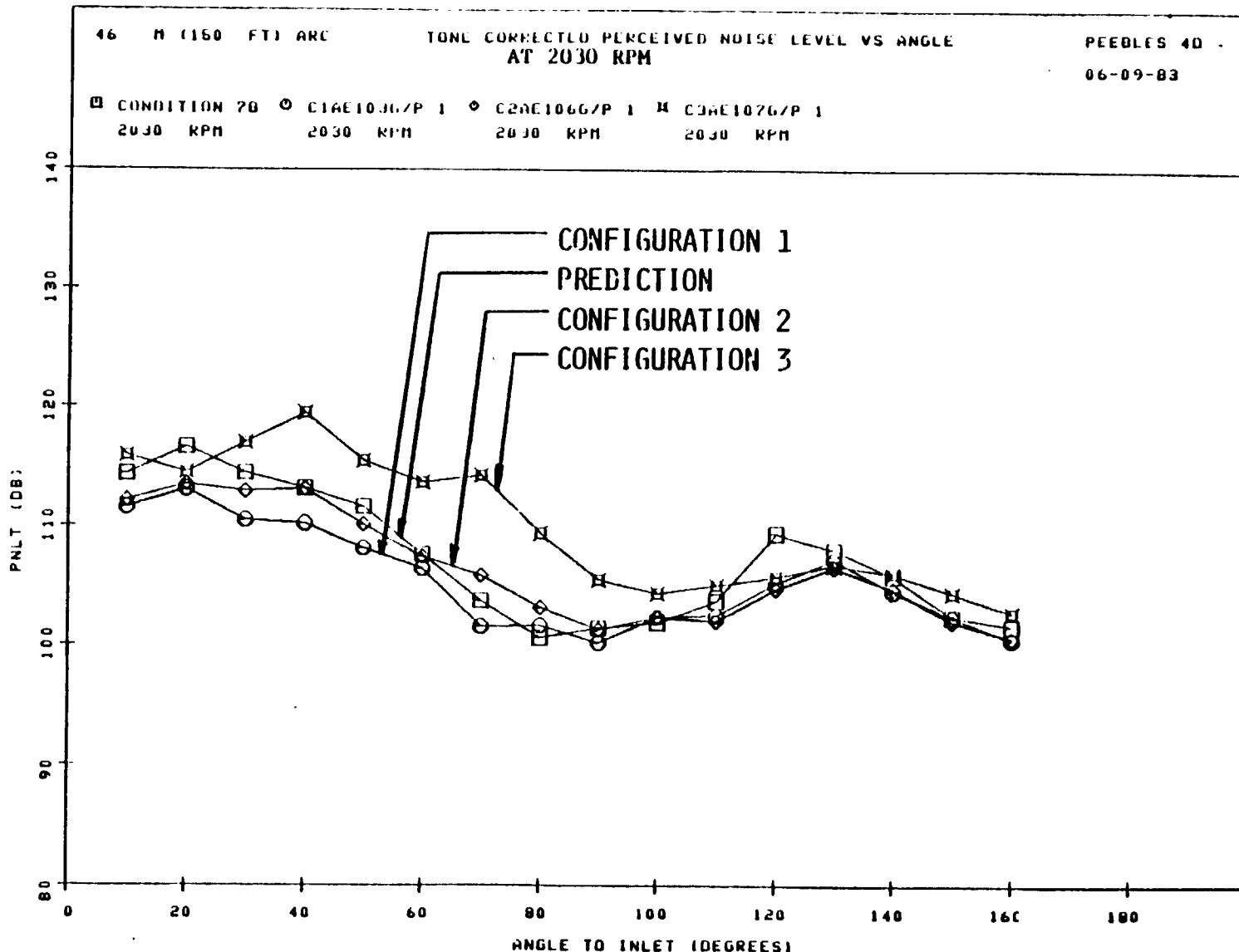
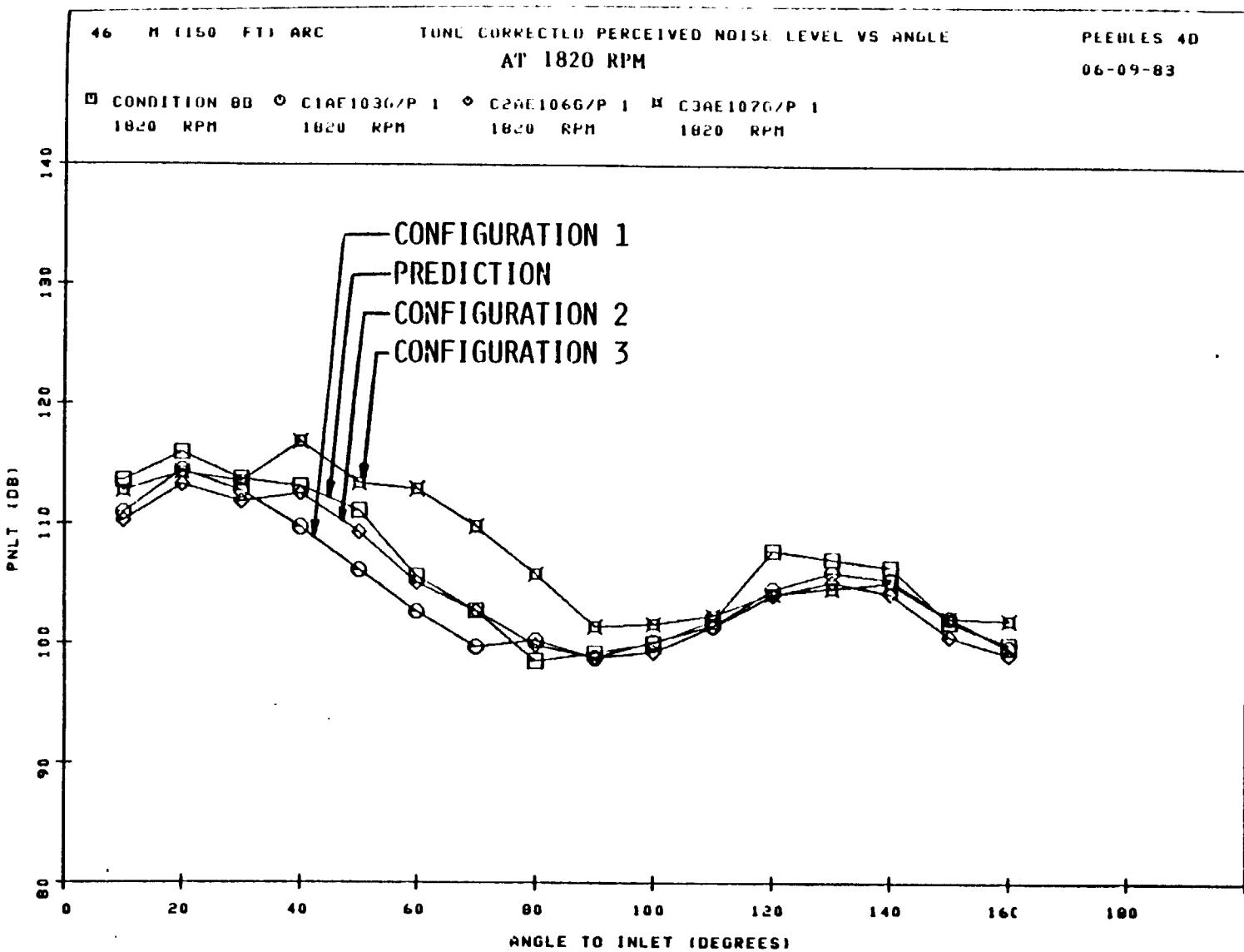


Figure V.5.4.8



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**Figure V.5.4.9**

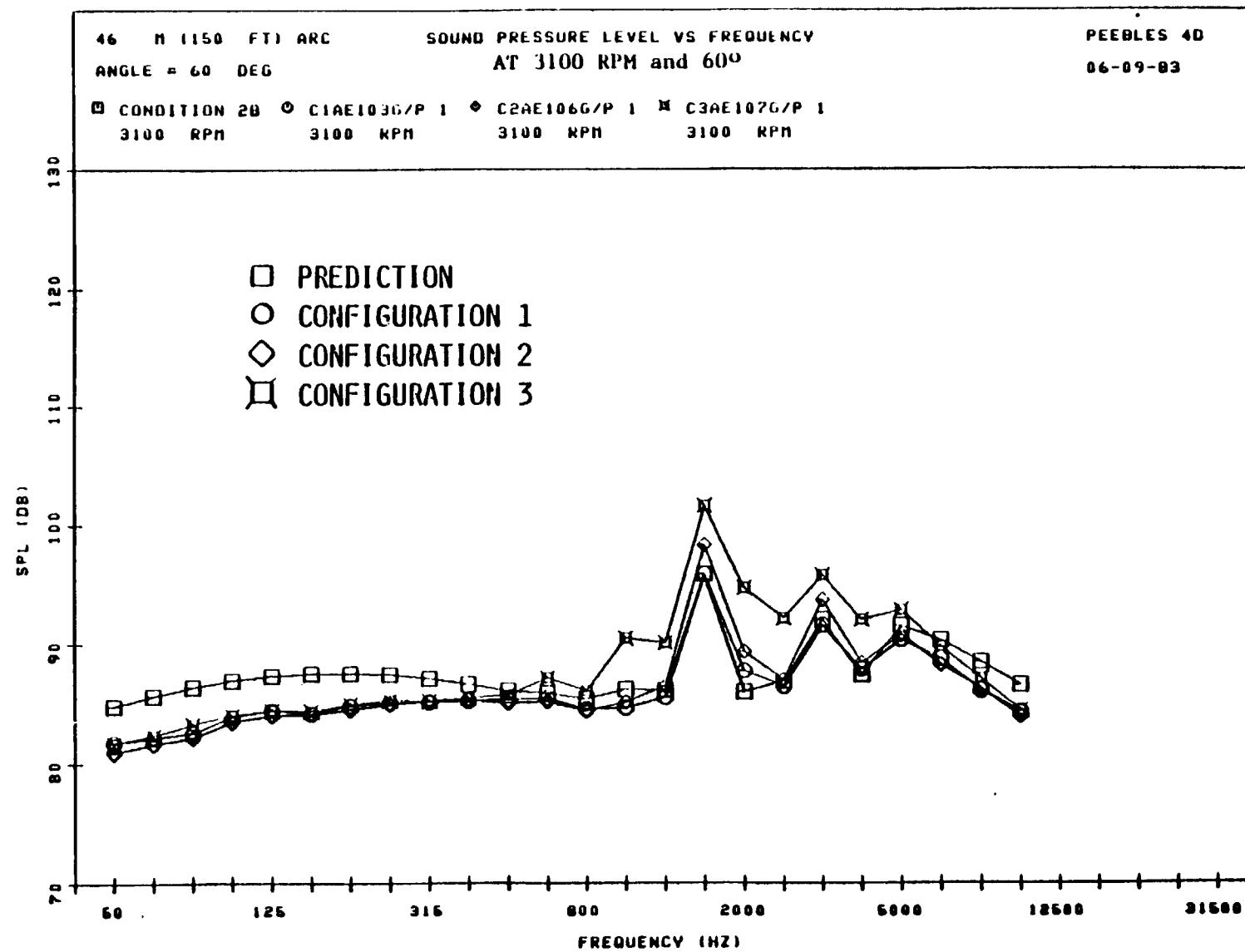
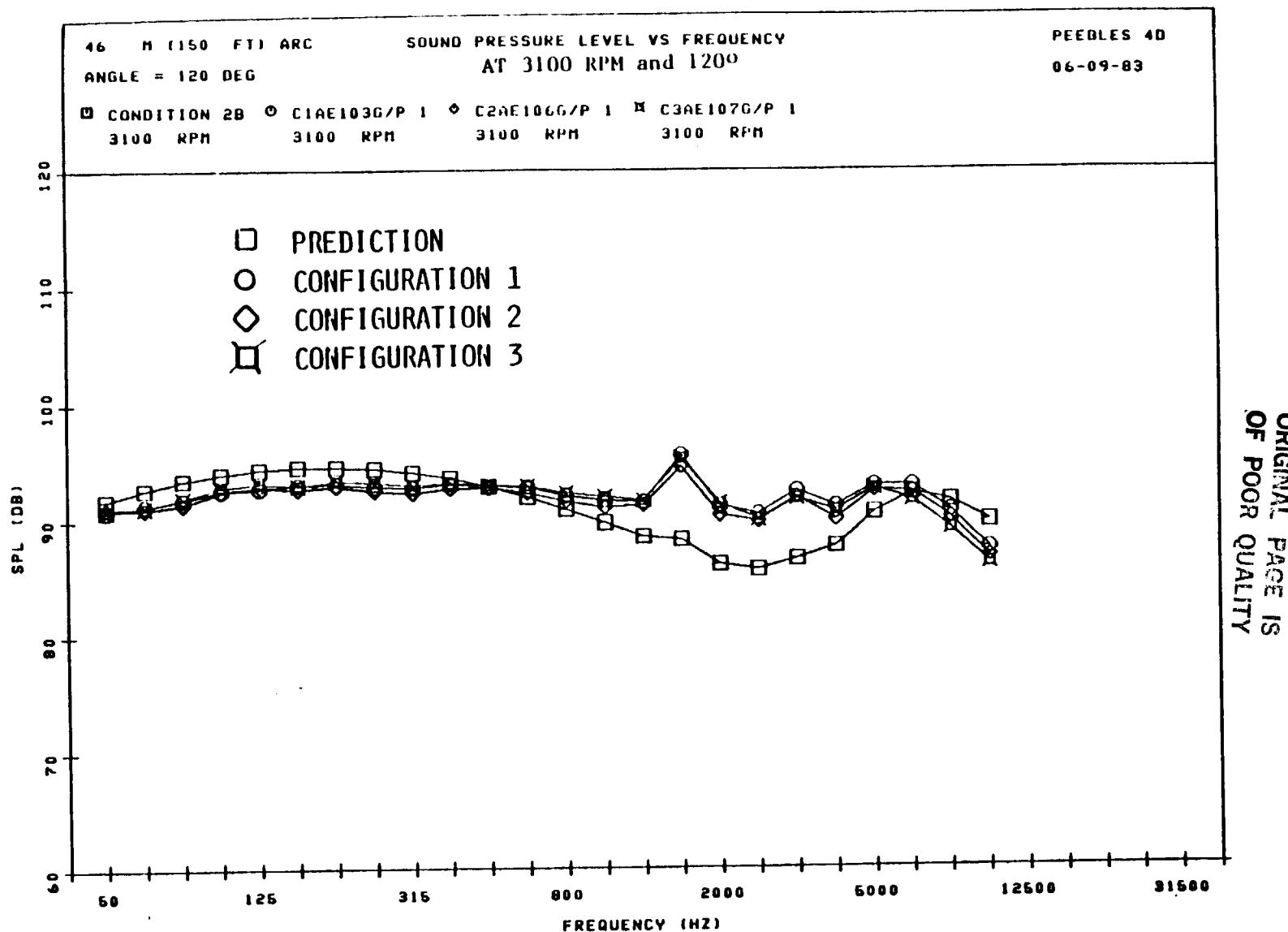


Figure V.5.4.10



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Figure V.5.4.11

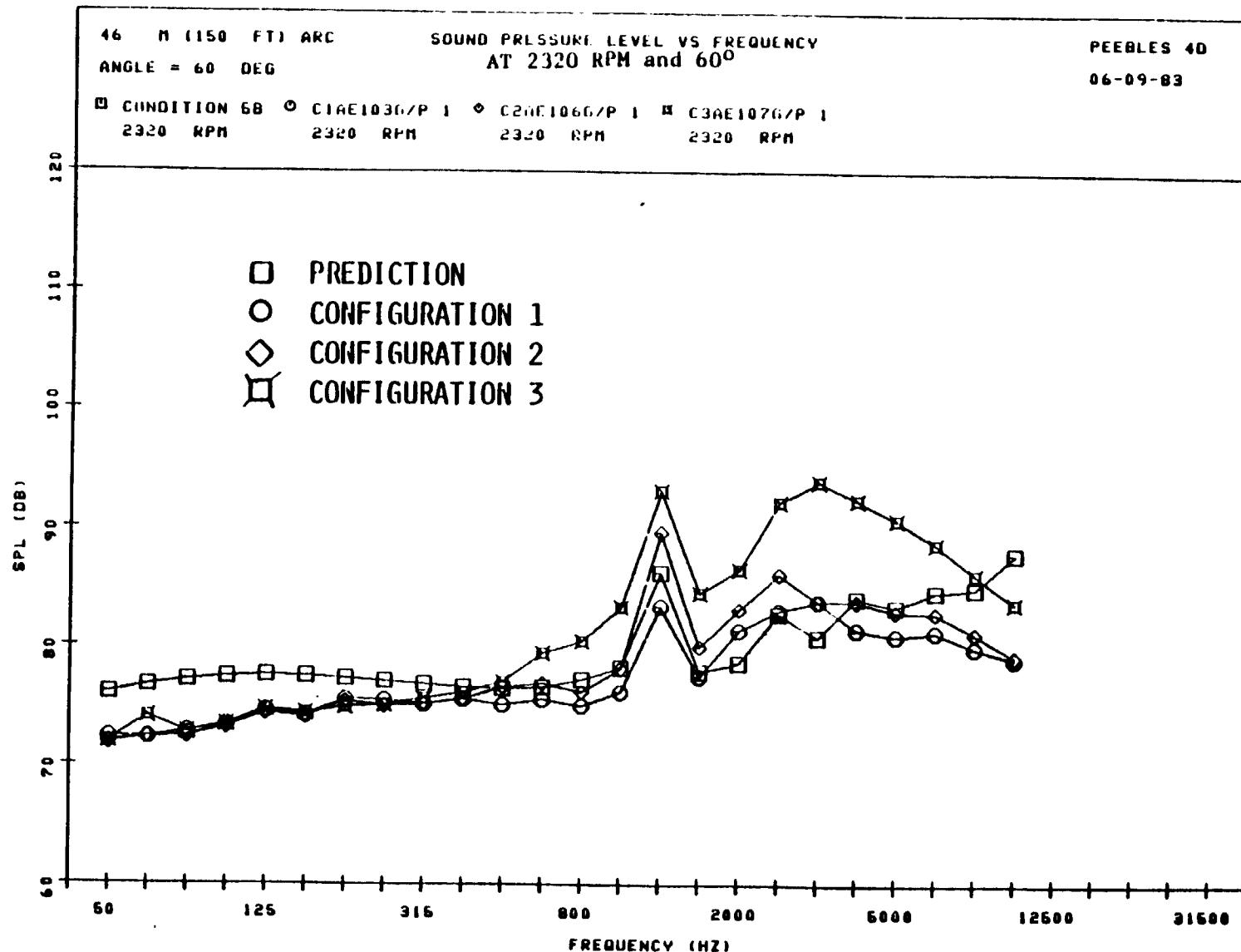


Figure V.5.4.12

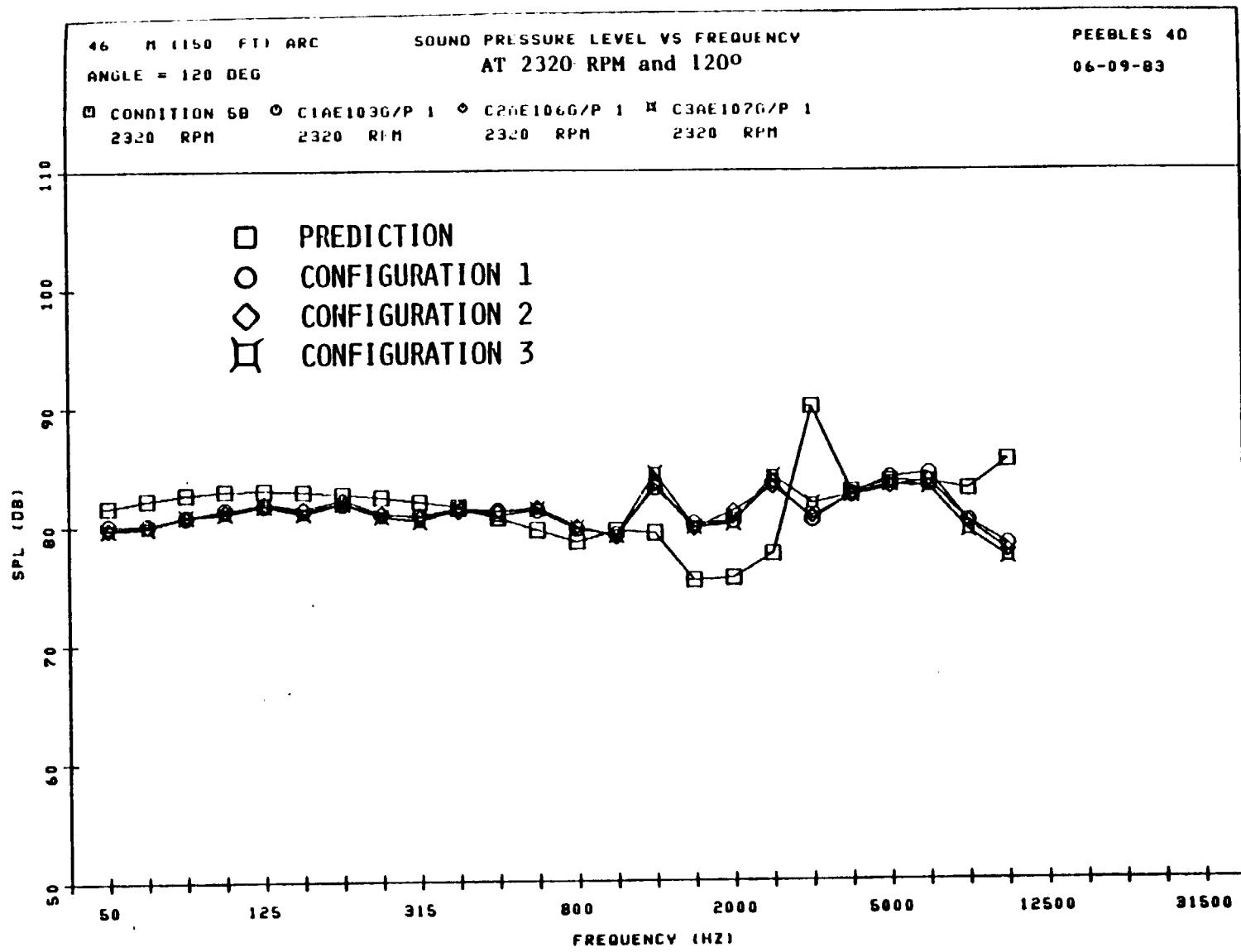


Figure V.5.4.13

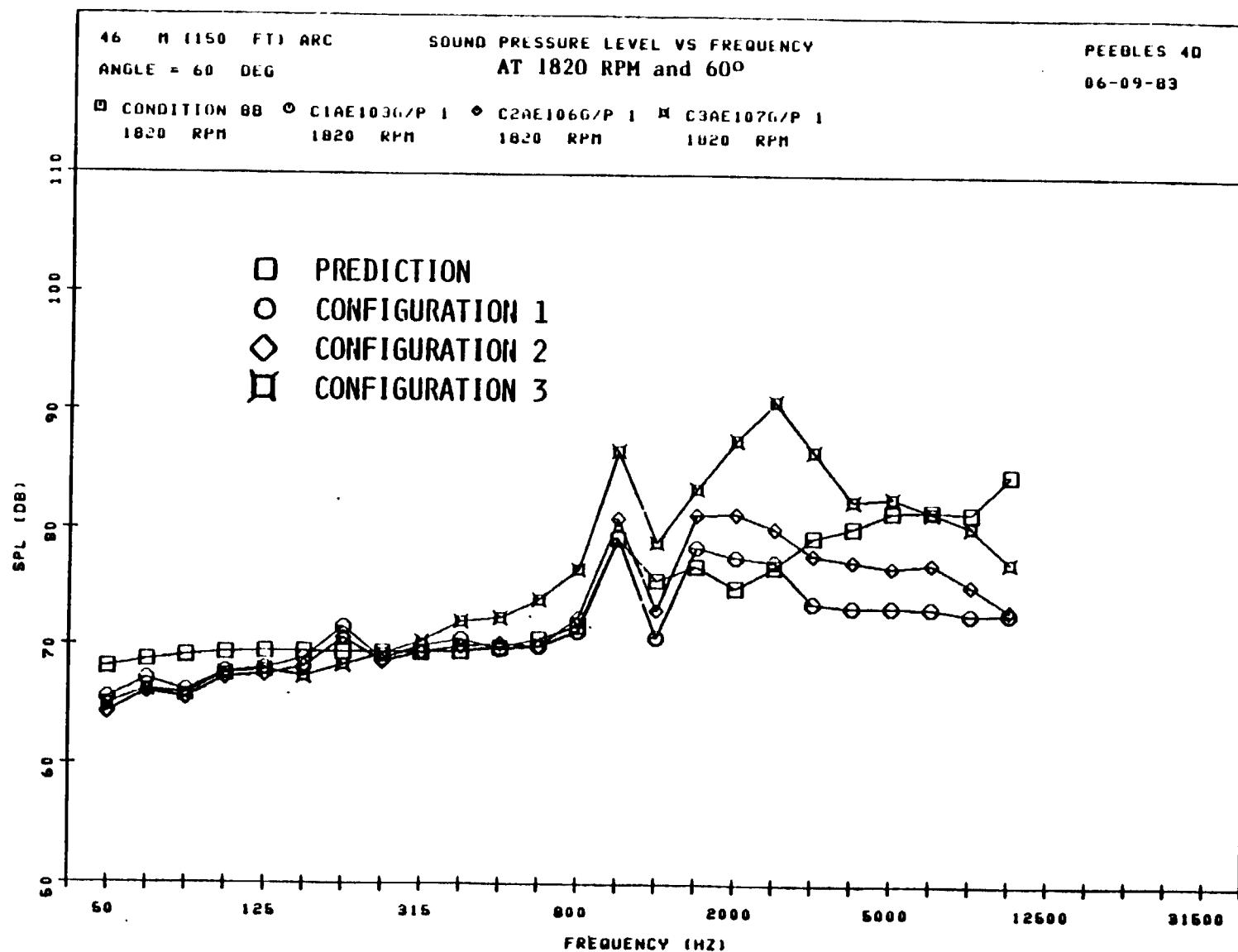
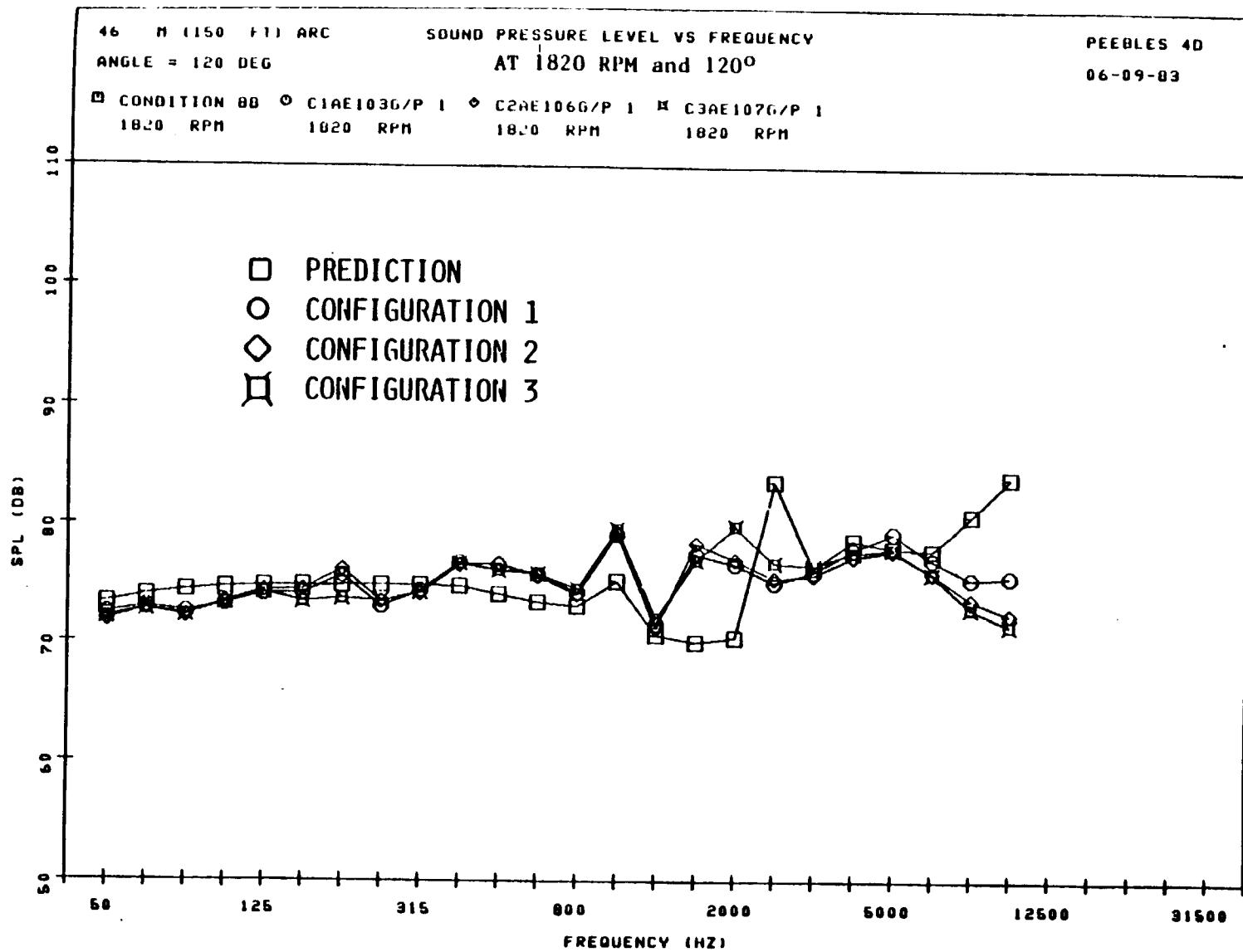


Figure V.5.4.14



- High speed aft measured levels are underpredicted - All measurements were made on a polar arc centered on the fan face. As jet noise is a distributed source, with an apparent source location located several diameters downstream from the fan face, the measurements were made in the nearfield of the source. The jet noise prediction methodology used (SAE ARP 876B) does not have a source location procedure to account for this.
- Low speed forward quadrant and 120° levels are overpredicted - This is probably due to an overprediction of the fan rotor-turbulence interaction noise effects on the higher harmonics.
- Aft angles, all speeds show overpredicted turbine levels - The turbine tones appear to be broadened spectrally and lower in amplitude than expected, probably due to turbulence in the jet mixer.

## 6.0 COMPARISON AND DISCUSSIONS

### 6.1 CUT-ON FAN NOISE CHARACTERISTICS

It was demonstrated during the fan scale model test (Section 2.3.1) and confirmed by comparisons to scaled CF6-50 data (Figures VI.1.1 to VI.1.3) that cut-on fan blade passing frequency levels with wide rotor-stator spacing are similar to cut-off fan blade passing frequency levels with tighter spacing.

### 6.2 EXHAUST MIXER NOZZLE NOISE CHARACTERISTICS

The exhaust nozzle scale model test demonstrated that forced mixer exhaust nozzles are quieter than separate flow nozzles and similar to conic flow nozzles for the same thrust. (Reference Photograph VI.2 for example of ICLS mixer.)

### 6.3 KEVLAR BULK ABSORBER CHARACTERISTICS

Both the fan scale model test and the ICLS test verified the suitable applicability of Kevlar as a bulk absorber material for acoustic treatment panels.

### 6.4 FAN NOISE SCALING TECHNIQUES

Comparison of the Rotor 11 scale model data scaled up to ICLS conditions and the ICLS full scale data verified the fan modeling techniques used.

Rotor 11 data was scaled up to the full size ICLS conditions by first selecting tip speeds equal to those tested on the ICLS. Then after shifting the blade passing frequency tone to the correct frequency band, the amplitudes of the scale model data were adjusted using the following relationship:

$$L_{FS} = L_{SM} + 10 \log \left( \frac{w_{FS}}{w_{SM}} \right) + 50 \log_{10} \left( \frac{v_{FS}}{v_{SM}} \right)$$

**Figure VI.1.1 Comparison of 1/3 Octave BPF Directivity for E<sup>3</sup> ICLS and CF6-50 LNN at Equal Tip Speeds**

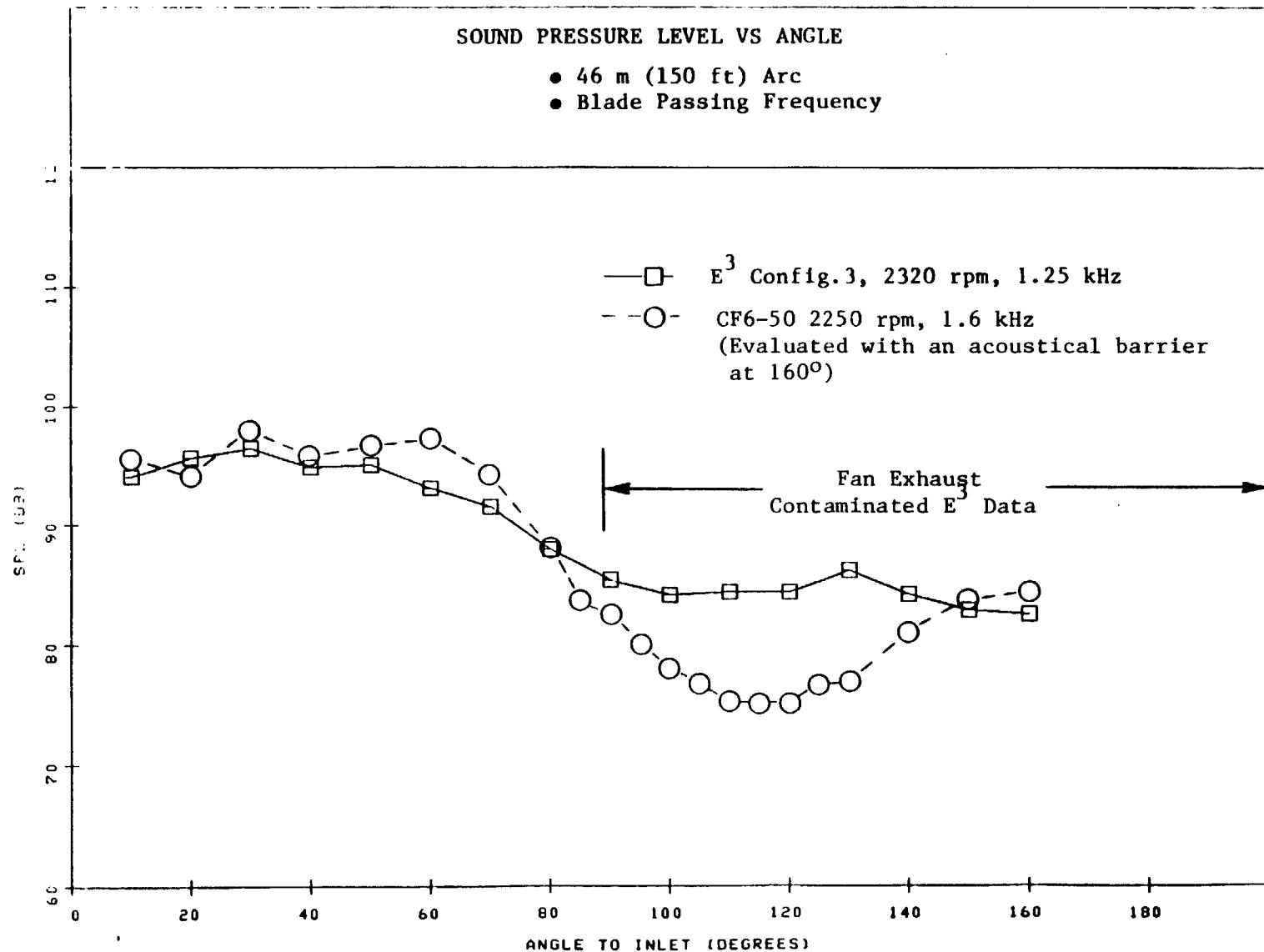
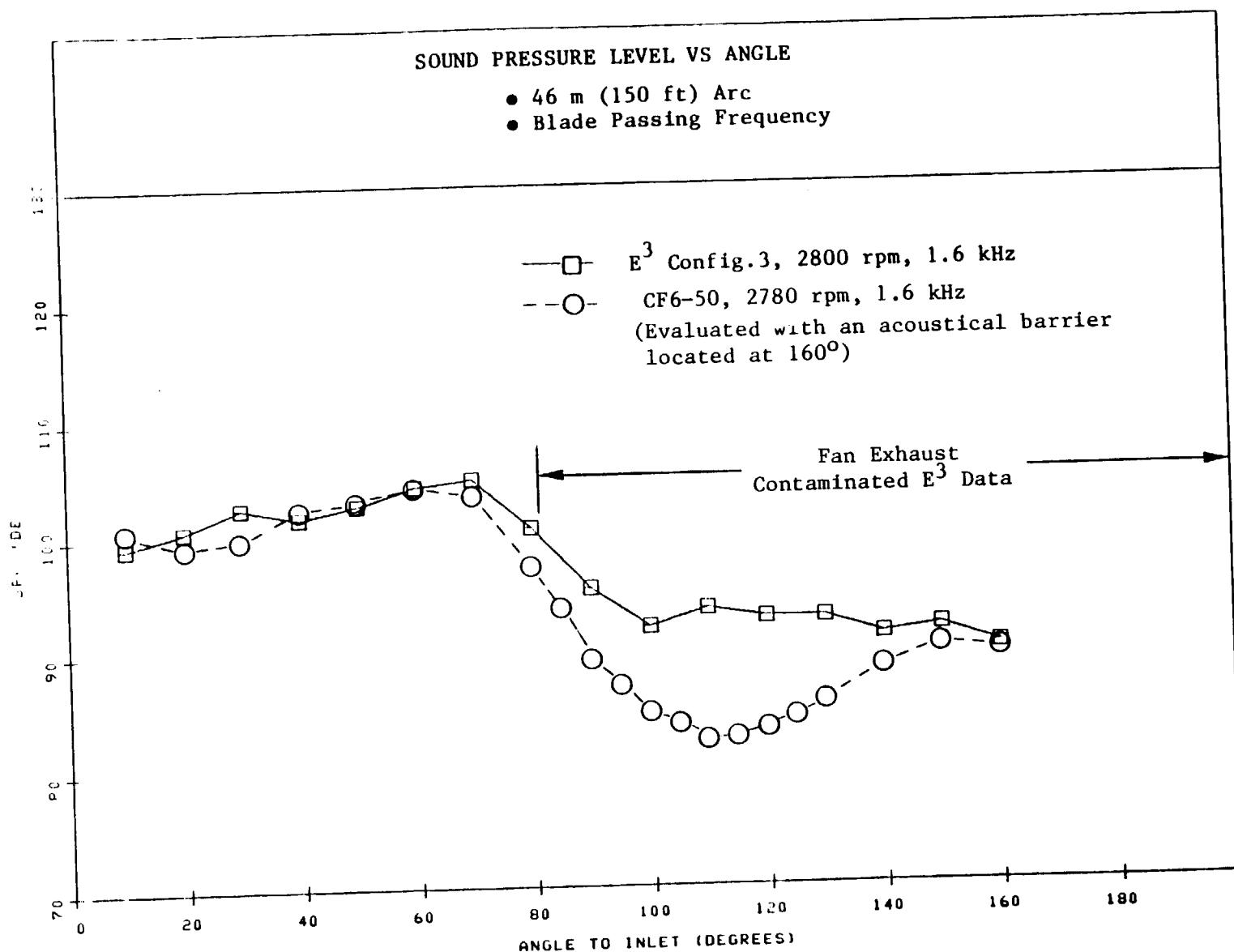
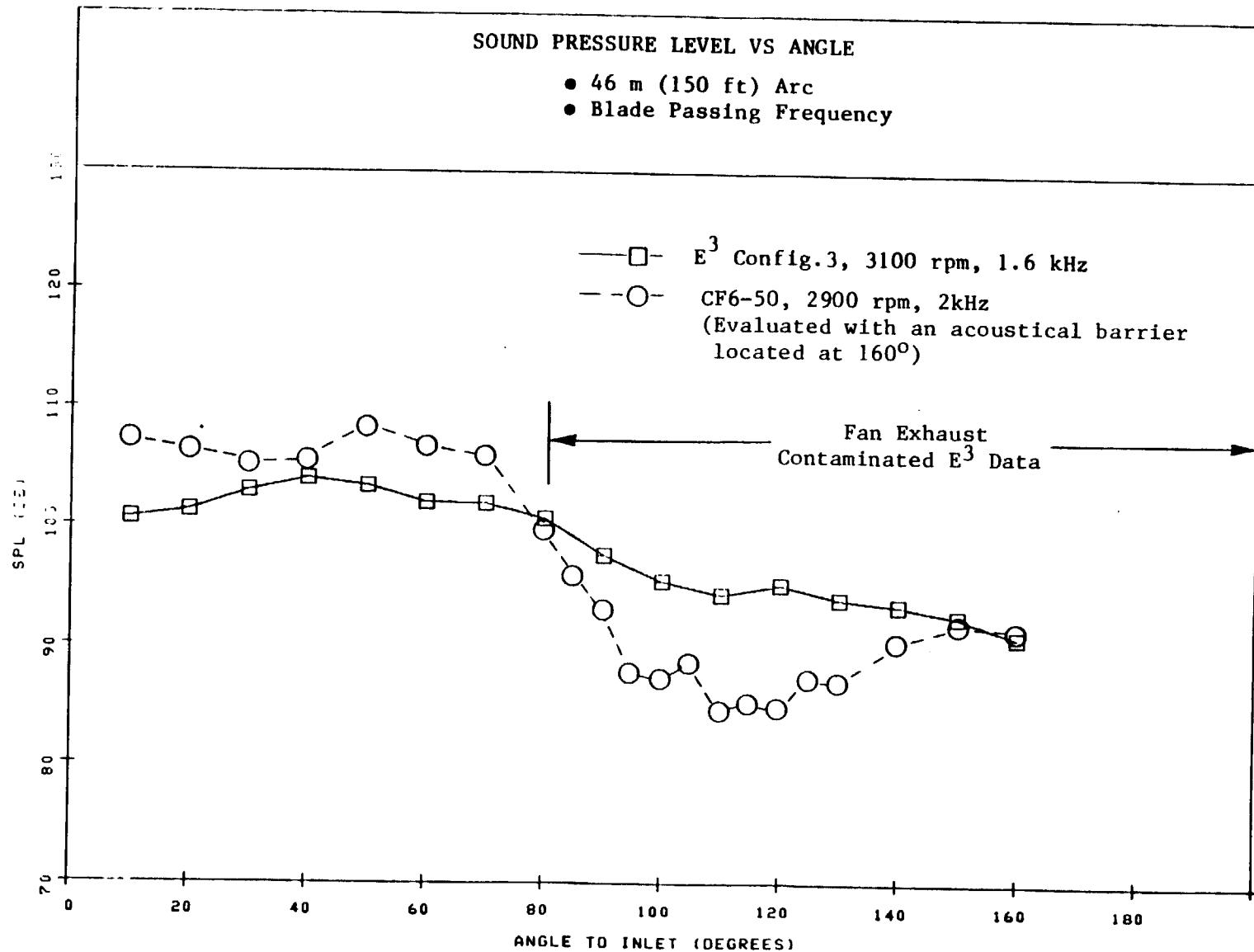


Figure VI.1.2 Comparison of 1/3 Octave BPF Directivity for E<sup>3</sup> ICLS  
and CF6-50 LNN at Equal Tip Speeds



**Figure VI.1.3 Comparison of 1/3 Octave BPF Directivity for E<sup>3</sup> ICLS and CF6-50 LNN at Equal Tip Speeds**



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**Figure VI.2    ICLS Exhaust Mixer Nozzle**

Where:  $L_{FS}$  = Full scale tone level  
 $L_{SM}$  = Scale model tone level  
 $W_{FS}$  = Full scale weight flow  
 $W_{SM}$  = Scale model weight flow  
 $V_{FS}$  = Full scale tip speed  
 $V_{SM}$  = Scale model tip speed

No adjustments were made to the data to reflect hardware design differences, e.g., vane-blade ratio and spacing (for BPF and harmonics), blade metal angles (for broadband noise), blade details (radial mode distribution) and booster effects (combination tones).

Figures VI.4.1 to VI.4.3 show the comparisons of the hardwall inlet configurations at 30°, 60°, and 90° at 45.7 meter arc freefield conditions for 3,100, 2,800, and 2,320 RPM corrected fan speeds. The scaled model data is generally in good agreement with the ICLS data, except, as expected, at 90° where exhaust radiated noise contaminates the ICLS data. As there are higher induced inflow turbulence levels at the ICLS outdoor test stand structures than the scale model anechoic chamber structures, higher fan tones were expected at the cutback (2,800 RPM) and approach (2,320 RPM) speeds. In addition, at low speed, the booster and booster plus fan combination tones become significant and contribute to the corresponding one-third octave bands.

Figures VI.4.4 to VI.4.6 show the similar comparisons using the treated inlet configurations. Again, the scaled model and the full scaled data are in reasonably good agreement.

It should be noted that there is a potential problem with the scaling techniques used. By shifting the scale model several one-third octave frequency bands so that the blade passing frequencies of the model and full scale coincide, the assumption is made that the size and magnitude of the ingested turbulence is also scalable. The scale model data is typically between 16 KHz to 40 KHz. If the turbulence effects are not scalable, then it would be expected that its effect at these frequencies would be rapidly diminishing with harmonic number, and the scale model will have a higher fall off rate. This effect is evidenced in the data.

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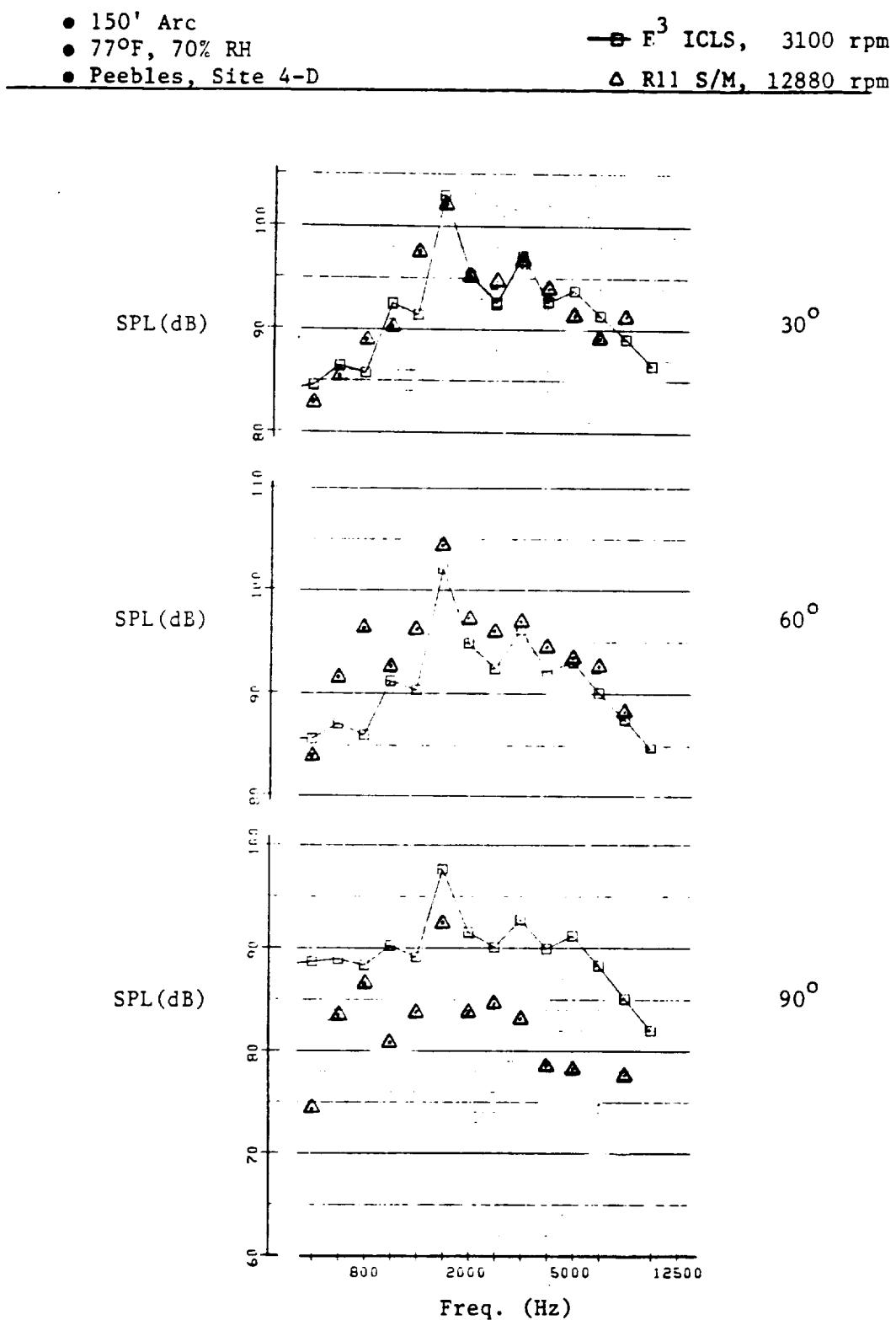


Figure VI.4.1 Comparison of Full Scale  $E^3$  ICLS Test Results with R11 Scaled Model Fan Rig Data (Hardwall Inlet)

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- 150° Arc
- 77°F, 70% RH
- Peebles, Site 4-D

- ■ F<sup>3</sup> ICLS, 2800 rpm
- △ R11 S/M, 11914 rpm

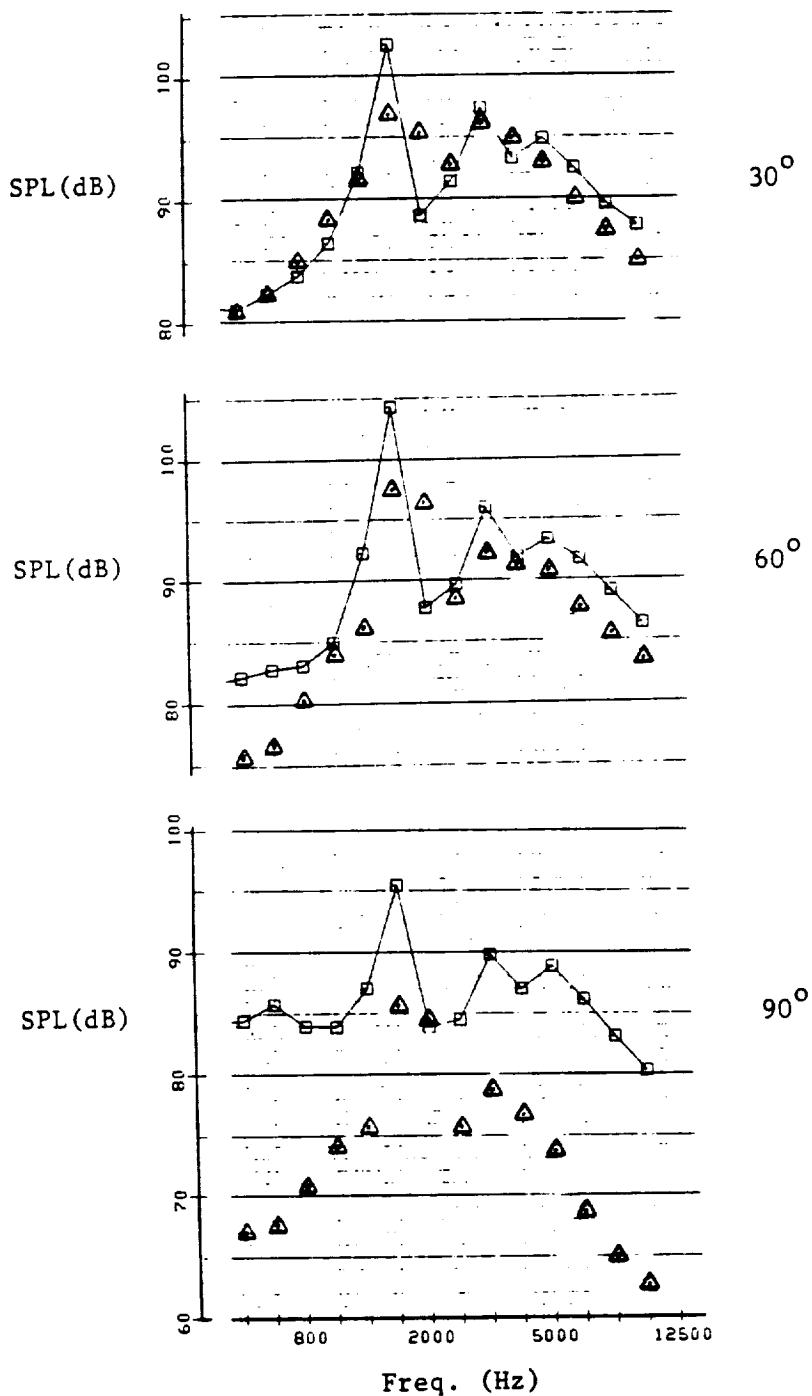


Figure VI.4.2 Comparison of Full Scale E<sup>3</sup> ICLS Test Results with R11 Scaled Model Fan Rig Data (Hardwall Inlet)

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- 150' Arc
- 77°F, 70% RH
- Peebles, Site 4-D

—  $E^3$  ICLS, 2320 rpm  
△ R11 S/M, 9660 rpm

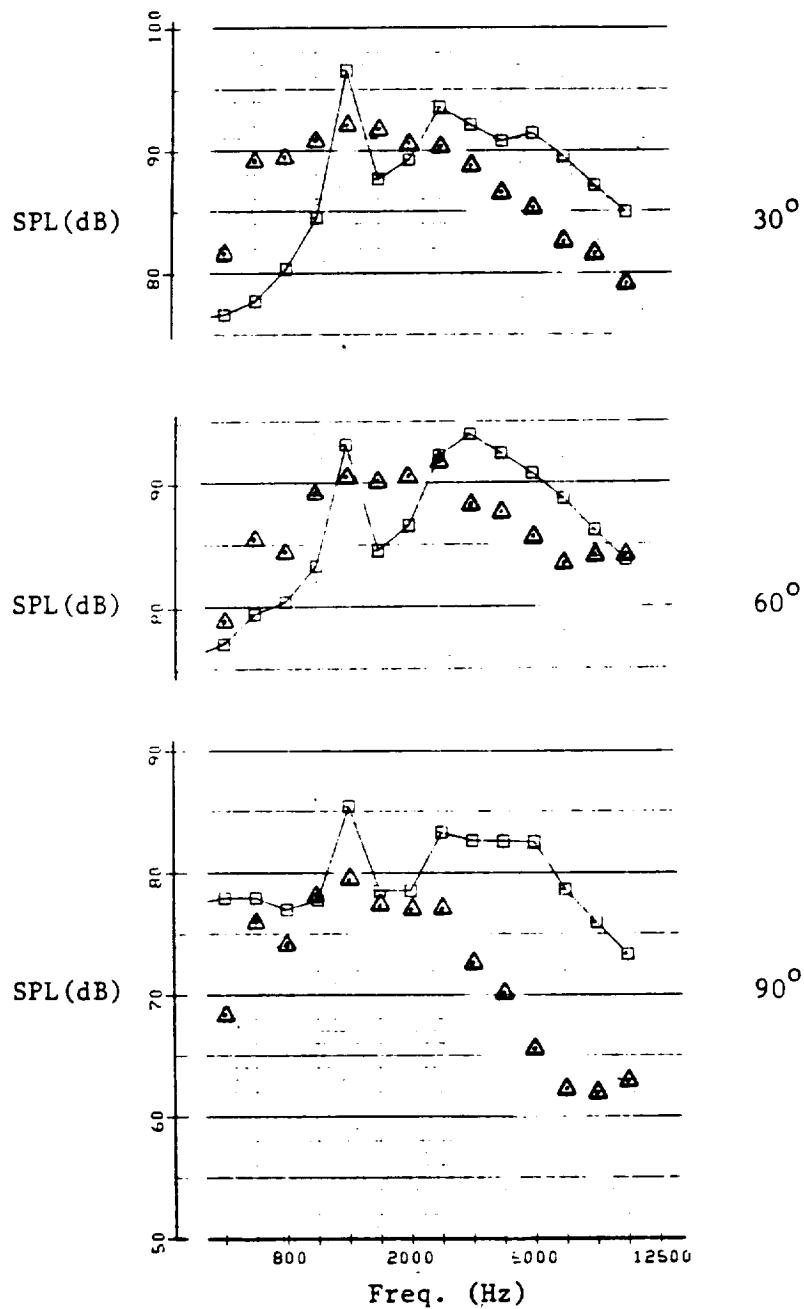


Figure VI.4.3 Comparison of Full Scale  $E^3$  ICLS Test Results with R11 Scaled Model Fan Rig Data (Hardwall Inlet)

- 150' Arc
- 77°F, 70% RH
- Peebles, Site 4-D

$F^3$  ICLS, 3100 rpm  
△ R11 S/M, 12880 rpm

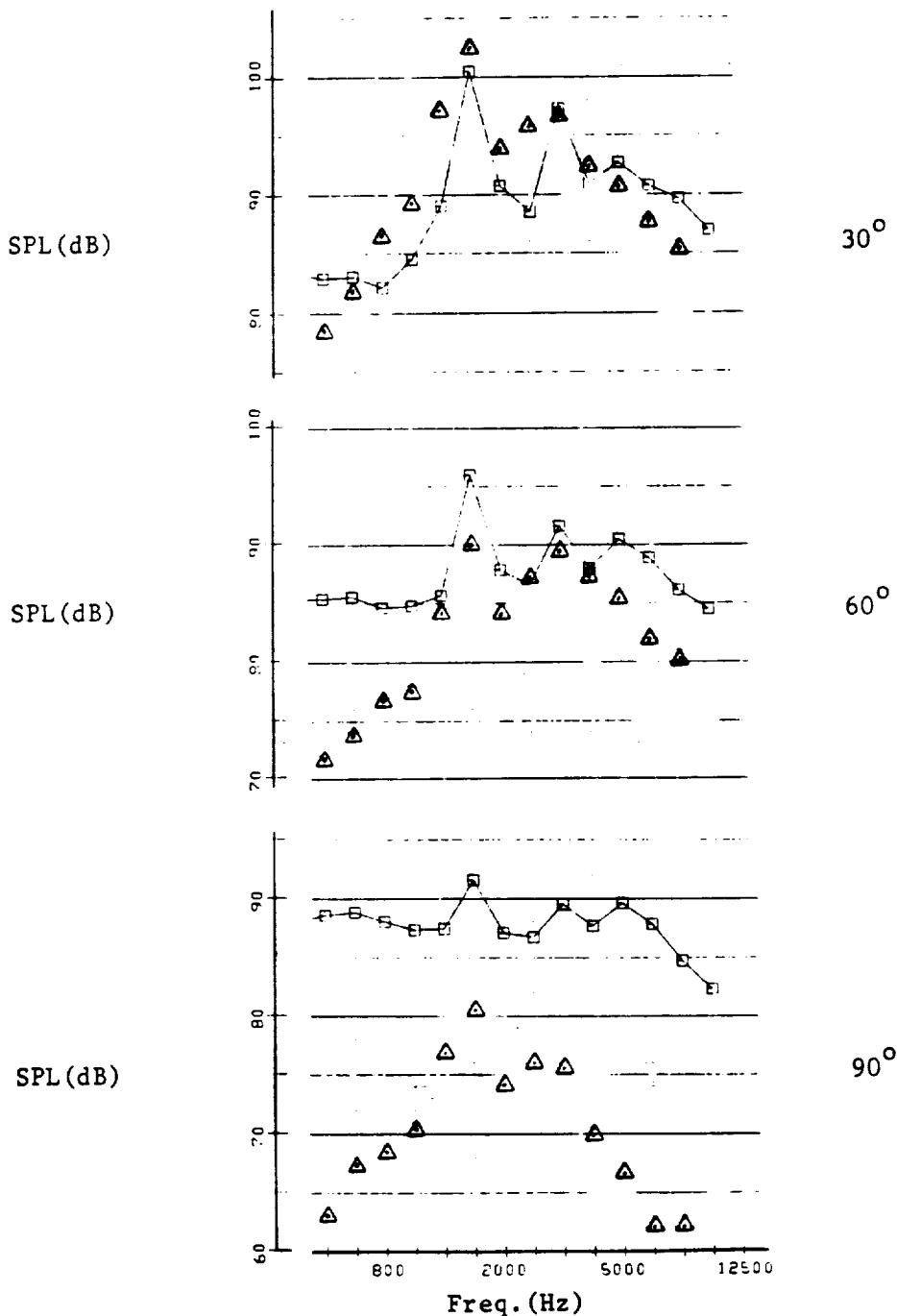


Figure VI.4.4 Comparison of Full Scale  $E^3$  ICLS Test Results with R11 Scaled Model Fan Rig Data (Treated Inlet)

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- 150' Arc
- 77°F, 70% RH
- Peebles, Site 4-D

- $E^3$  ICLS, 2800 rpm  
△ R11 S/M, 11914 rpm

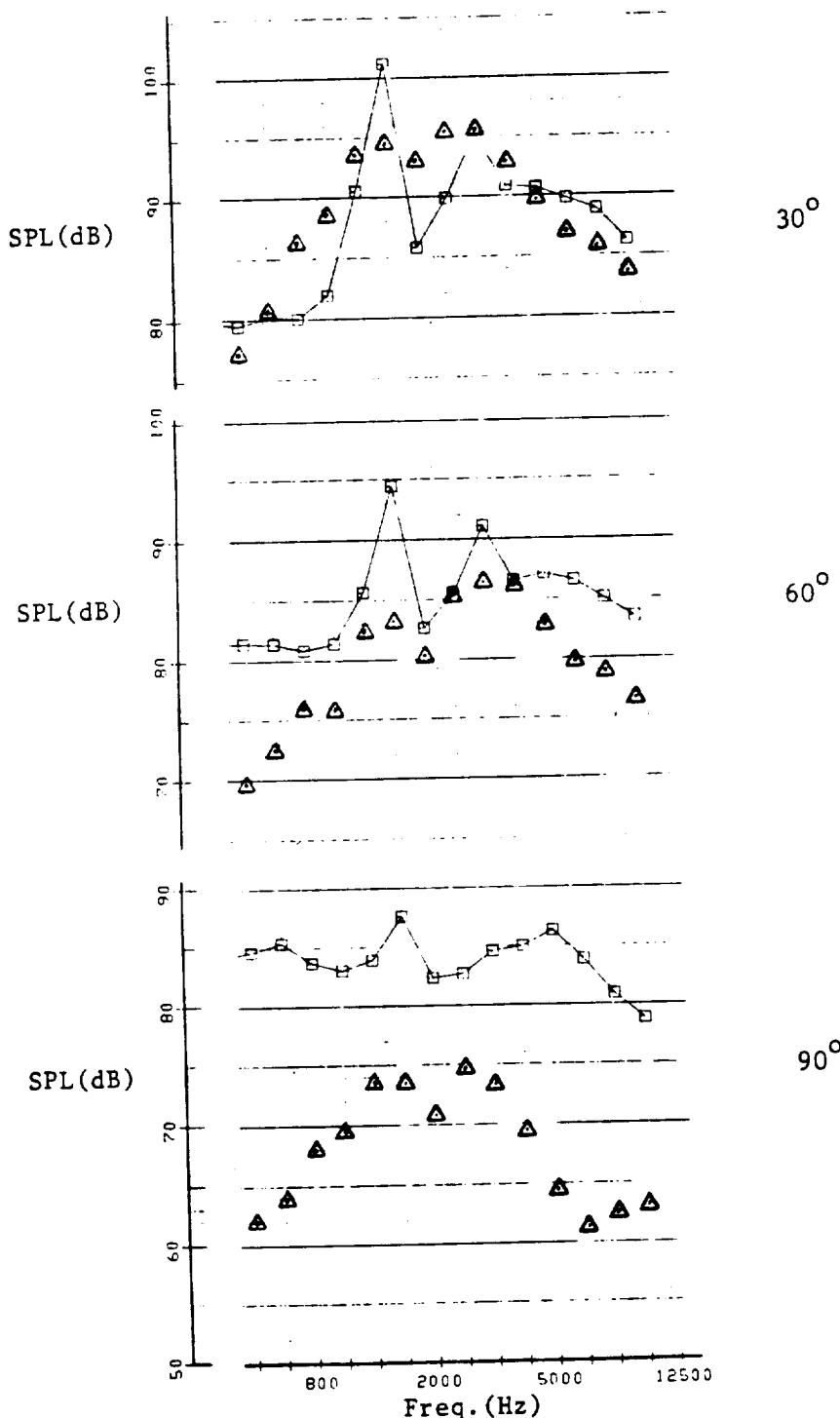


Figure VI.4.5 Comparison of Full Scale  $E^3$  ICLS Test Results with R11 Scaled Model Fan Rig Data (Treated Inlet)

• 150' Arc  
 • 77°F, 70% RH  
 • Peebles, Site 4-D

—  $E^3$  ICLS, 2320 rpm  
 △ RII S/M, 9660 rpm

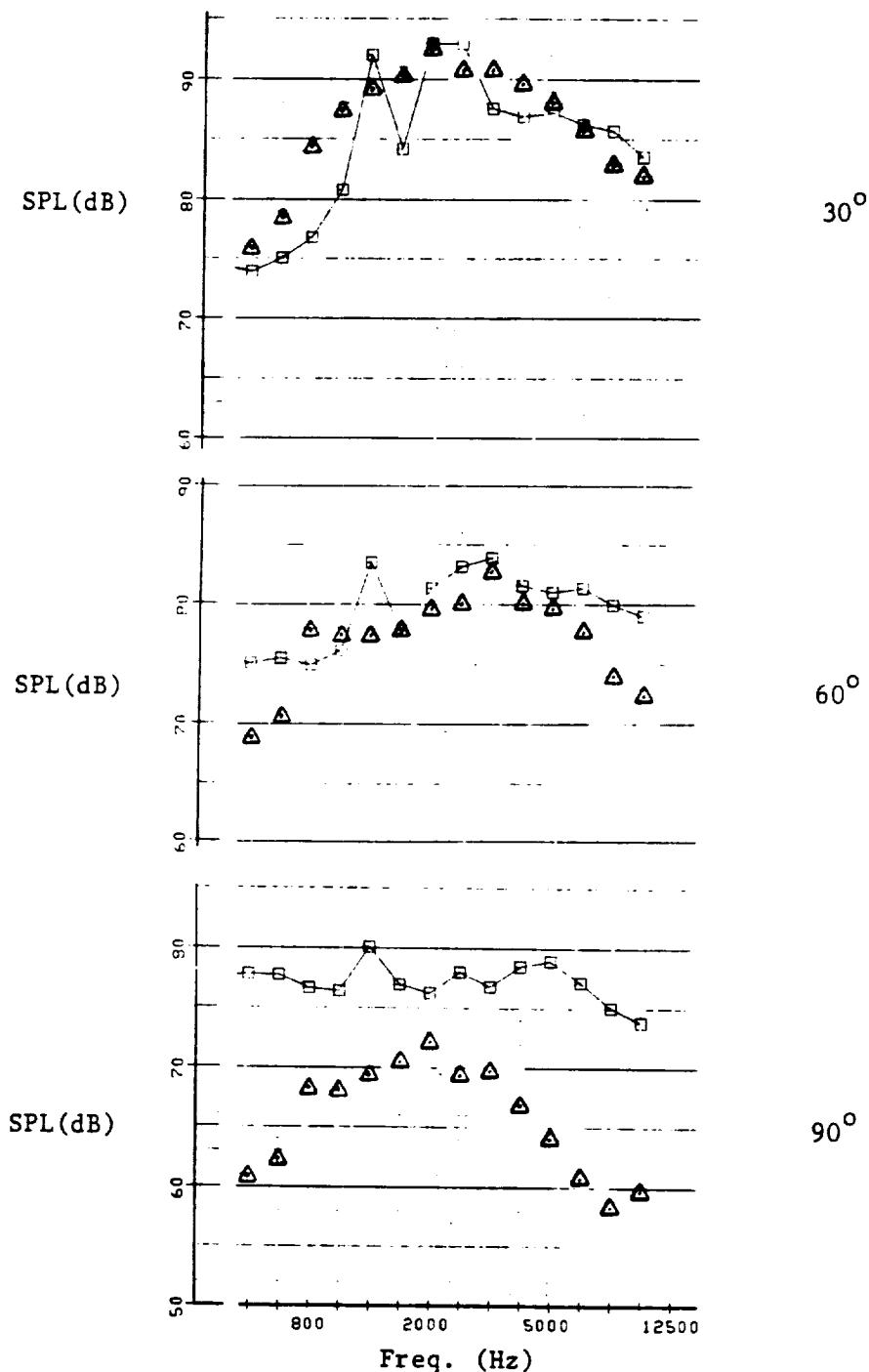


Figure VI.4.6 Comparison of Full Scale  $E^3$  ICLS Test Results with RII Scaled Model Fan Rig Data (Treated Inlet)

## 6.5 JET EXHAUST MIXER SCALING TECHNIQUES

Comparison of the scaled mixer nozzle model data presented in Section 4 of this report to the full scale ICLS data verified the jet scaling techniques, and it substantiated the use of scale model tests for exhaust nozzle acoustic design purposes.

The mixer nozzle model data was scaled to the ICLS conditions using the data points which had similar bypass ratios and mean mixed velocities. The one-third octave frequency bands are shifted to lower frequencies based on maintaining equivalence of Strouhal numbers. The relationship relating the scale model and full scale frequencies is:

$$f_{fs} = f_{sm} \left( \frac{d_{sm}}{d_{fs}} \right)$$

Where:  $f_{fs}$  = Full scale frequency, Hz

$f_{sm}$  = Scale model frequency, Hz

$d_{sm}$  = Scale model diameter, m

$d_{fs}$  = Full scale diameter, m

No adjustments were made to reflect differences in jet apparent source location and the directivity and spherical divergence corrections associated with such.

Figures VI.5.1 and VI.5.2 show typical directivity comparisons of the overall sound pressure level of the scaled model mixer levels and the full scale ICLS data. These comparisons show good agreement between the scaled model and the full scale data at these high power points (low power points were not compared due to contamination of the OASPL's because of turbomachinery related noise).

Figures VI.5.3 to VI.5.8 show selected spectral comparisons corresponding to the high power OASPL directivities discussed above. The spectral shapes observed are also in good agreement, with the small differences at low

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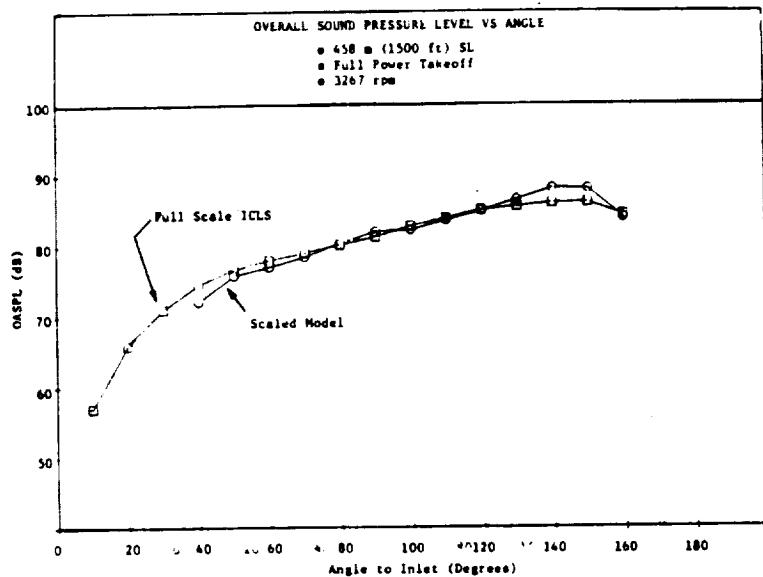


Figure VI.5.1 OASPL Directivity Comparison of Scaled Model Data and Full Scale ICLS Data at Takeoff Power

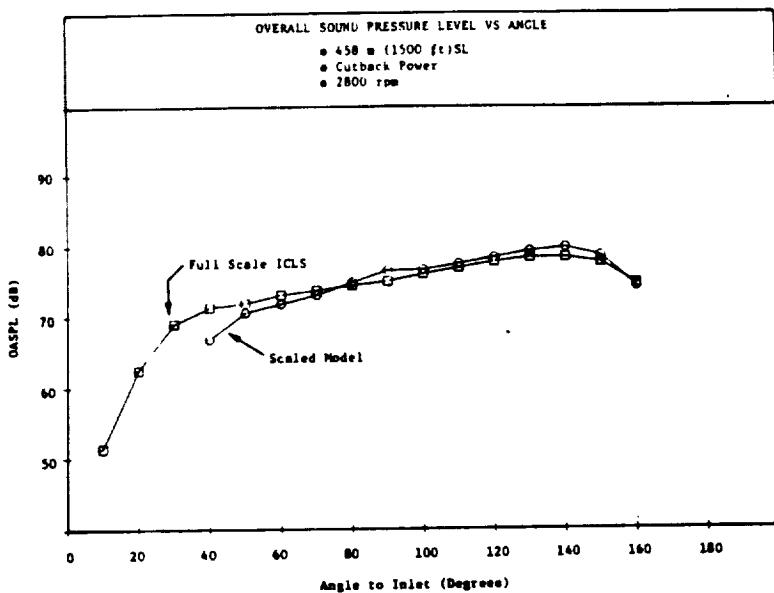


Figure VI.5.2 OASPL Directivity Comparison of Scaled Model Data and Full Scale ICLS Data at Cutback Power

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Figure VI.5.3

$60^\circ$  Spectral Comparison of  
Scaled Model Data to Full  
Scale ICLS Data at Takeoff  
Power Power

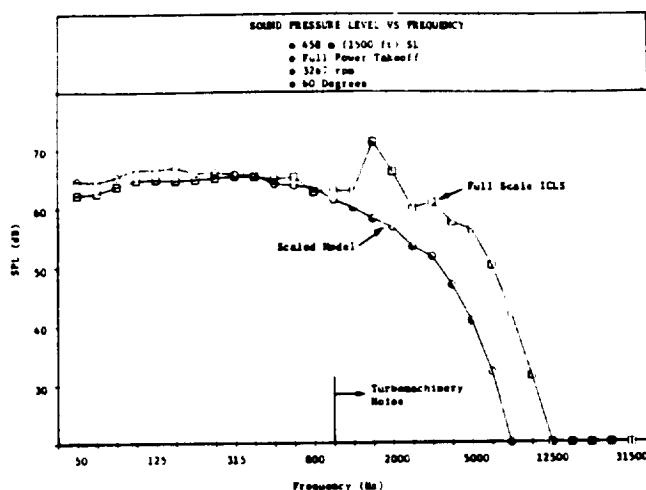


Figure VI.5.4

$90^\circ$  Spectral Comparison of  
Scaled Model Data to Full  
Scale ICLS Data at Takeoff  
Power

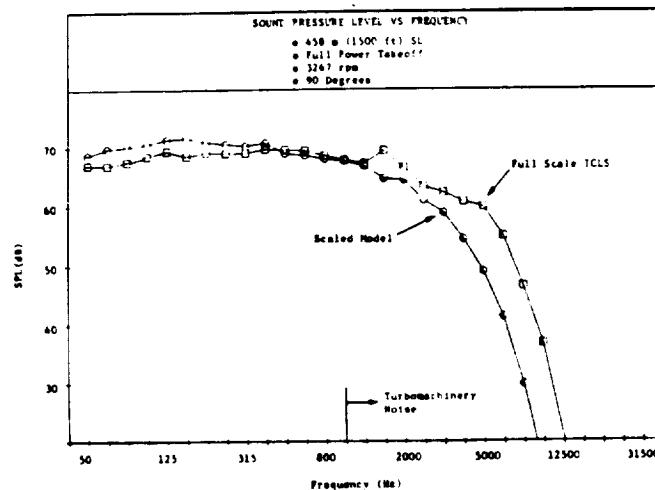
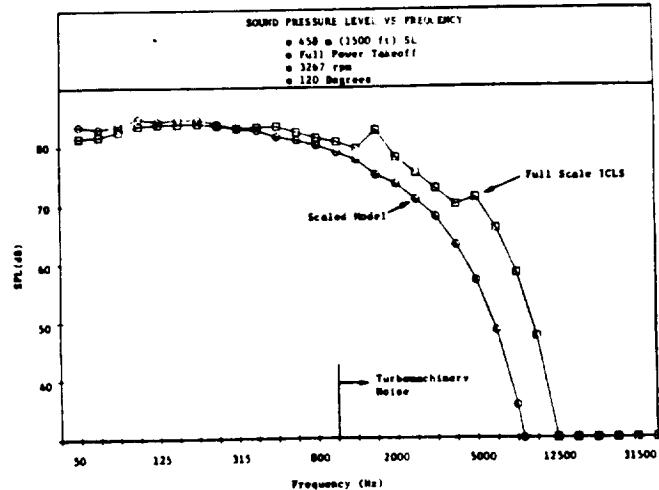


Figure VI.5.5

$120^\circ$  Spectral Comparison of  
Scaled Model Data to Full  
Scale ICLS Data at Takeoff  
Power



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Figure VI.5.6

$60^\circ$  Spectral Comparison of Scaled Model Data to Full Scale ICLS Data at Cutback Power

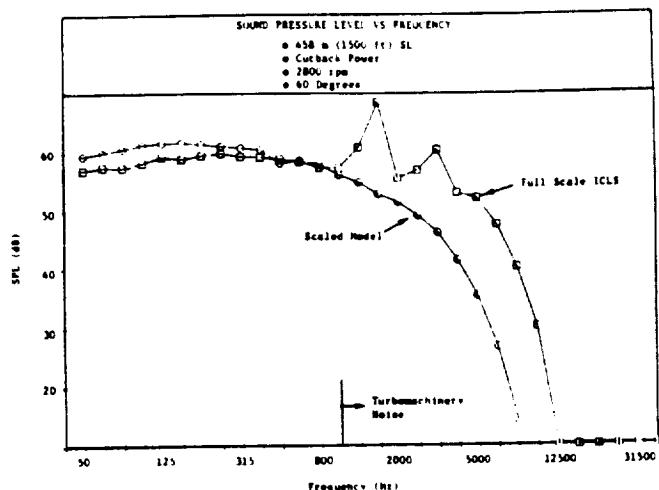


Figure VI.5.7

$90^\circ$  Spectral Comparison of Scaled Model Data to Full Scale ICLS Data at Cutback Power

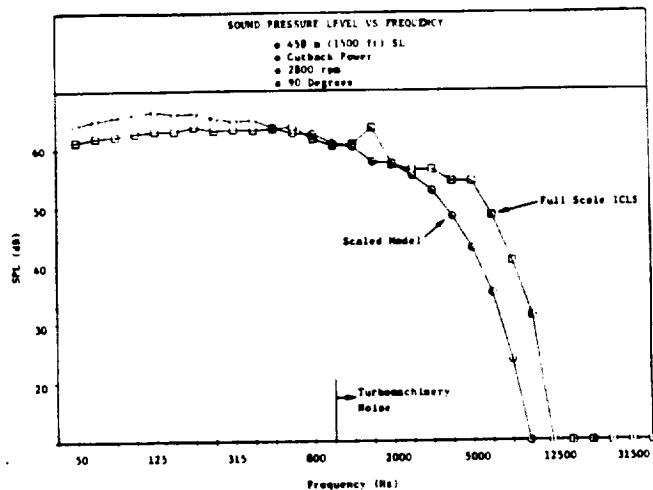
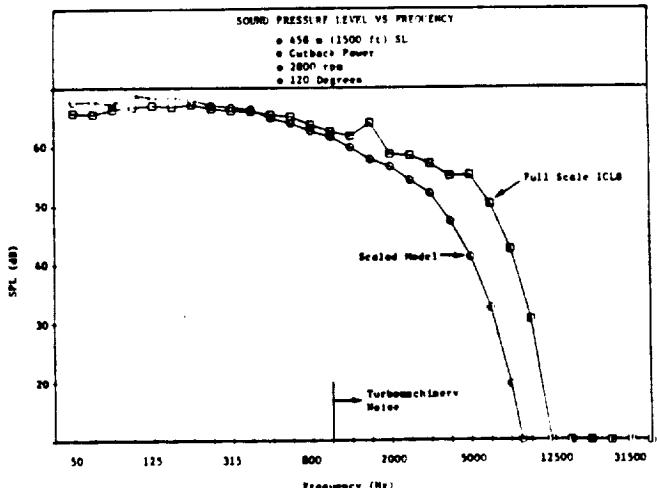


Figure VI.5.8

$120^\circ$  Spectral Comparison of Scaled Model Data to Full Scale ICLS Data at Cutback Power



frequency attributable to mixer cycle differences, measurement arc differences (the ICLS measurement arc was centered on the fan face, the scale model measurement arc was centered at exhaust nozzle exit plane, approximately 4.8 meters different), and apparent source location differences between the two measurement schemes used (apparent source locations are different between the two tests due to differences in the relationship of distributed source effects and microphone locations). Large differences are expected at frequencies above 1,000 Hz since ICLS full size engine included other turbomachinery component noise contributions, while the nozzle scaled model data was for jet noise alone.

#### 6.6 COMPARISON OF ICLS TO THE CF6-50 AND REFERENCE ENGINE

The overall demonstration of the acoustic technology developed under this program can best be seen by comparison of the ICLS to the CF6-50 reference engine. One of the more dramatic comparisons is the PNLT vs thrust correlation shown in Figure VI.6.1. This figure shows the substantial reduction of noise generated by newer technology E<sup>3</sup> engine when compared to the older technology CF6-50. The reduction of lower powers are due to improvements in fan rotor/IGV spacing, turbine vane/blade ratio selection and treatment selection. Reductions at higher powers are primarily due to the improved exhaust mixer nozzle as opposed to the separate flow nozzle used on the older technology engine.

These differences in design technology are further evidenced by comparison of the margins relative to FAR36 Stage 3 rule (Reference Table VI.6). For example, the margins of the newer technology E<sup>3</sup> powered Douglas Trijet are significantly better than the older technology CF6-50 powered DC-10 Trijet (values quoted are taken from Reference 15).

Figure VI.6.1 Comparison of  $E^3$  ICLS Peak PNLT to Thrust Corrected CF6-50 Levels

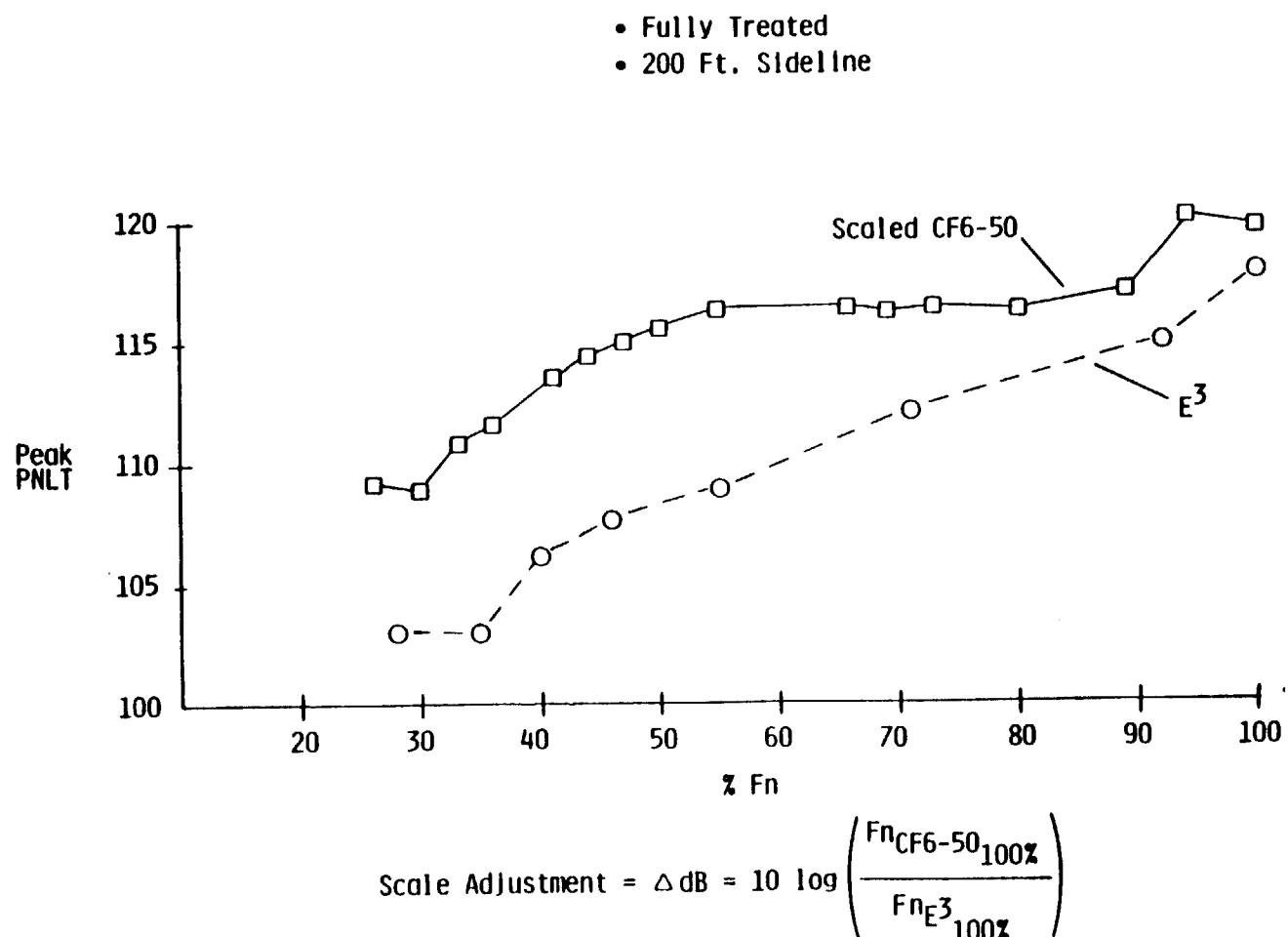


TABLE VI.6  
MARGIN RE FAR36 (STAGE 3)

	<u>E<sup>3</sup> Projected Douglas Trijet TOGW = 497,000 lb.</u>	<u>CF6-50C2 DC-10-30 TOGW = 555,000 lb.</u>
Takeoff	4.4 (Full Power)	3.5 (Cutback)
Sideline	6.5	3.3
Approach	3.8	-1.1

Note: "--" denotes exceeding FAR36 limits.

## 7.0 CONCLUSIONS

It is projected that advanced aircraft powered by engines using the design concepts developed under this contract will meet noise regulation goals with a minimum average growth margin of 3.7 EPNdB (Table VII).

Several notable acoustic technological contributions were made during this contract:

- Demonstration of cut-on fan noise characteristics and acceptability
- Demonstration of jet exhaust mixer nozzle noise characteristics
- Demonstration of Kevlar bulk absorber suppression panels
- Verification of fan model noise scaling procedures
- Verification of mixer nozzle model noise scaling procedures

These characteristics and procedures are elaborated in the Appendix.

TABLE VII

SUMMARY

PROJECTED AIRCRAFT NOISE LEVELS MEET ACOUSTIC PROGRAM  
GOALS WITH AVERAGE GROWTH MARGIN RELATIVE TO FAR36 (STAGE 3)

Approach	:	3.7 EPNdB
Full Power Takeoff:		4.5 EPNdB
Sideline	:	7.2 EPNdB

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9.0 APPENDIX

9.1 AVERAGE SOUND PRESSURE LEVELS

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### Appendix 9.1.1

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#### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - CIAE103G/P 1 1820AO

INPUT - CIAE103G/P 1	X02510	CIAE103G/P 1	X02600
		CIAE103G/P 1	X02370

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	65.1	66.1	65.4	66.9	64.6	65.5	66.4	67.8	68.6	69.4	70.9	72.4	74.4	76.1	77.6	79.1	125.7
63	72.6	72.9	71.9	74.4	66.2	67.1	68.5	69.4	69.0	70.3	71.6	73.0	74.6	76.0	77.3	78.0	126.5
80	67.7	66.2	65.0	65.0	65.1	66.1	66.8	67.7	68.4	69.7	71.1	72.5	74.2	75.5	76.6	76.3	125.1
100	67.9	66.7	65.7	66.1	67.3	67.7	67.1	68.4	70.0	71.2	71.7	73.3	74.7	76.6	77.5	75.6	125.9
125	67.8	68.0	67.3	67.1	67.8	68.0	68.1	69.4	70.0	70.9	72.1	74.1	75.6	76.6	77.0	75.2	126.2
160	68.9	68.6	67.9	69.4	69.1	68.9	69.3	70.8	71.0	70.7	72.0	74.1	73.4	76.5	75.6	74.8	126.3
200	68.9	69.0	69.7	70.9	70.7	71.0	71.1	73.8	72.8	71.8	73.0	75.6	76.0	76.0	75.3	73.4	127.3
250	69.1	69.4	69.4	69.5	69.1	68.9	68.5	68.8	69.7	70.5	71.8	73.0	74.7	75.4	73.7	72.0	125.4
315	71.9	71.8	71.5	71.4	70.7	70.0	69.7	70.1	70.7	71.6	73.1	74.4	75.1	75.9	74.2	72.6	126.5
400	70.9	71.4	70.3	71.0	71.6	70.6	70.2	71.1	71.8	73.9	75.3	76.8	76.1	77.2	75.3	73.6	127.6
500	69.6	69.7	69.2	69.9	70.6	69.8	73.1	71.5	73.3	75.0	75.5	76.6	76.7	77.1	74.5	71.5	126.0
630	72.2	71.5	70.9	71.0	70.3	70.0	70.7	70.3	70.3	71.7	73.7	74.7	75.8	75.4	75.1	72.9	127.0
800	78.0	77.5	74.5	74.5	72.4	71.3	69.9	70.5	70.9	72.4	73.5	74.3	75.6	75.1	72.0	69.7	127.5
1000	86.2	87.5	82.7	83.7	80.4	79.5	75.4	74.3	73.5	75.2	75.5	79.3	78.6	79.0	76.9	74.4	133.8
1250	81.4	80.3	77.8	75.0	73.0	70.9	68.7	69.6	68.7	70.3	71.1	71.6	74.0	73.9	70.4	67.7	127.5
1600	91.3	95.5	94.1	85.8	84.6	78.7	78.6	76.6	74.3	75.7	76.3	77.6	81.3	79.1	76.4	73.7	139.6
2000	87.8	89.1	90.0	88.2	81.9	77.8	75.3	74.3	72.0	73.1	75.0	76.7	79.3	78.3	74.6	71.5	136.5
2500	82.4	82.4	81.6	82.3	82.1	77.4	74.6	74.3	73.0	73.6	73.5	75.2	78.3	79.0	74.2	73.3	132.6
3150	83.4	85.2	82.0	81.9	78.1	73.9	71.2	73.2	72.4	73.4	76.2	76.1	79.1	78.2	73.9	70.9	132.6
4000	84.0	87.0	81.7	81.0	77.4	73.5	70.8	73.5	72.4	73.5	75.4	78.0	78.7	78.5	73.9	70.6	133.1
5000	83.6	83.8	81.7	81.3	77.4	73.6	70.2	73.9	72.3	74.4	75.6	79.5	81.3	79.8	75.4	71.3	133.3
6300	84.1	85.4	85.7	82.6	78.0	73.5	69.1	74.3	71.9	73.5	75.1	77.2	80.5	80.0	75.0	71.6	134.4
8000	81.9	82.0	80.1	79.6	76.7	72.9	67.9	75.3	70.8	72.5	72.6	75.5	79.5	80.2	74.5	69.7	132.6
10000	78.3	79.1	77.1	77.0	76.1	73.0	66.5	77.0	71.3	73.0	71.1	75.8	79.6	80.7	75.0	68.8	133.0

GASPL 96.1 98.5 97.1 93.7 90.7 87.2 85.4 86.6 85.4 86.6 87.7 89.7 91.5 91.5 89.1 87.5 145.7

PNL 108.5 110.9 109.4 106.9 103.7 100.0 97.7 98.6 97.6 98.9 100.5 102.6 104.5 104.0 100.4 97.9

PNLT 110.7 114.5 112.8 109.9 106.3 102.6 99.8 100.4 98.9 100.2 101.6 104.7 106.1 105.5 102.3 99.8

DBA 96.7 99.2 97.9 94.3 91.1 87.1 84.9 85.6 84.0 85.4 86.5 88.5 90.7 90.2 86.4 83.5

APNLW= 108.6 IPNLW= 117.3 LAPNLW= 96.4 LIPNLW= 98.7 TPNLW= 116.1

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	JALPHA	PAMB	PWL AREA
06-07-83	PEBBLES 40	150 FT ARC	1820	9663	SAE77	28.74	FULL SPHERE
GP MICS/FULLY TREATED/6DB FREEFIELD CORR./#21102							

## Appendix 9.1.2

16214ES/FSDR/RPMAVG

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### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - CIAE103G/P 1 2030AO

INPUT - CIAE103G/P 1	X02500	CIAE103G/P 1	X02380
CIAE103G/P 1	X02520		

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	66.8	67.3	66.5	68.1	67.5	68.1	68.8	70.4	70.8	72.2	73.6	75.4	77.4	79.6	81.9	83.8	129.2
63	72.7	72.9	71.8	74.9	69.6	69.8	70.3	71.0	71.6	72.6	74.1	75.3	77.5	79.4	81.6	82.6	129.4
80	69.1	68.1	67.3	67.3	68.0	69.2	69.7	70.5	71.4	72.5	73.9	75.6	77.6	79.3	81.0	80.8	128.6
100	69.6	68.5	67.9	68.5	69.2	69.6	70.2	71.5	72.5	73.1	74.4	76.4	78.3	79.9	81.4	79.4	129.1
125	69.7	69.3	69.3	70.2	69.9	70.4	71.3	71.9	72.8	73.7	75.3	76.9	76.6	79.7	81.2	78.8	129.3
160	70.4	70.1	69.5	70.4	70.0	70.2	70.9	71.3	72.5	73.6	74.7	76.6	77.9	79.5	79.1	78.5	128.7
200	71.8	71.4	71.0	72.2	71.8	72.9	71.6	73.2	73.3	75.1	75.3	76.4	79.1	78.8	78.6	77.5	129.2
250	70.1	70.8	71.1	71.2	71.0	71.2	71.5	71.7	72.7	73.6	74.7	76.0	77.3	77.8	77.1	75.0	128.1
315	73.0	73.0	72.6	73.2	72.5	71.7	72.0	72.2	72.6	74.2	75.2	76.4	77.5	78.2	77.3	75.0	128.7
400	71.7	72.2	72.3	73.0	71.8	72.3	71.9	72.9	73.7	76.2	76.9	78.2	78.7	78.3	78.7	75.2	129.6
500	71.0	70.8	72.0	72.0	71.6	72.0	72.5	73.4	75.0	76.6	77.5	77.9	78.6	78.1	75.8	73.2	129.5
630	73.5	72.2	73.1	73.1	71.8	71.7	71.8	73.1	74.3	76.0	77.2	77.3	77.9	76.8	75.0	72.4	129.1
800	77.6	77.2	76.3	75.2	72.8	72.0	71.5	72.9	72.9	74.4	76.1	75.6	77.0	76.0	73.6	71.5	128.8
1000	87.8	89.0	86.0	84.6	81.4	79.4	77.3	77.0	74.8	76.3	77.4	80.1	80.0	78.6	77.0	75.8	135.2
1250	85.5	84.6	82.7	80.5	77.6	75.6	73.7	73.6	72.6	73.8	75.5	76.1	77.4	76.2	73.7	72.2	131.9
1600	83.2	83.5	81.5	79.0	76.2	74.5	73.1	73.4	74.1	74.3	74.8	75.7	78.1	75.4	73.0	71.0	131.1
2000	90.2	92.0	88.7	87.5	83.4	82.1	78.3	76.0	74.9	75.9	77.0	79.0	82.7	79.0	76.9	73.4	137.6
2500	84.6	85.0	83.0	82.6	79.8	77.0	73.5	74.0	72.4	74.4	75.4	77.7	79.7	77.8	74.5	71.7	133.1
3150	84.1	84.7	85.5	85.4	85.0	83.2	76.6	76.2	74.2	75.6	76.1	78.1	81.4	78.5	74.8	72.7	135.7
4000	86.1	86.1	84.6	85.0	79.4	75.7	73.1	74.8	75.7	78.5	77.5	79.4	81.1	78.4	74.7	72.5	135.0
5000	85.5	86.2	85.3	85.6	81.5	77.1	73.3	75.1	74.5	76.6	78.2	79.8	81.9	78.8	74.3	71.4	135.6
6300	85.6	85.9	83.6	84.1	80.9	77.4	73.0	74.9	73.9	75.1	77.0	78.7	82.1	80.1	74.9	72.2	135.3
8000	84.1	84.1	83.2	82.4	79.7	75.6	71.4	75.8	71.9	73.4	74.3	77.1	80.7	79.0	72.4	69.6	134.5
10000	82.3	82.4	81.7	80.7	79.5	75.9	70.7	76.1	71.5	73.9	72.6	76.5	80.2	78.2	70.9	67.7	134.4
DASPL	96.6	97.3	95.3	94.8	91.9	89.8	86.9	87.7	87.1	88.7	89.6	91.2	93.3	92.4	91.6	90.7	146.4
PNL	109.5	110.4	108.3	108.0	106.2	104.3	100.0	100.5	99.9	101.9	102.2	103.9	106.1	104.1	101.3	99.2	
PNLT	111.6	113.1	110.5	110.2	108.3	105.6	101.7	101.7	100.3	102.5	102.6	105.4	107.3	104.7	102.5	100.6	
DBA	97.0	97.8	95.8	95.2	92.2	89.9	86.2	86.6	85.6	87.3	88.2	89.8	92.1	89.9	86.8	84.5	

APNLW= 109.4 IPNLW= 117.4 LAPNLW= 97.8 LTPNLW= 101.0 TPNLW= 116.1

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
CIAE103G/P 1 2030AO	06-07-83	PEMFIFS 40	150 FT ARC	2030	12157	SAE77	26.72	FULL SPHERE

GP MICS/FULLY TREATED/6DB FREEFIELD CORR /#21102

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### Appendix 9.1.3

16214ES/FSDR/RPMAVG

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#### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - CIAE103G/P 1 2180AO

INPUT - CIAE103G/P 1	X02530	CIAE103G/P 1	X02490
CIAE103G/P 1	X02390		

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	68.5	68.8	67.8	69.6	69.5	70.4	71.2	72.5	73.3	74.3	75.6	77.6	80.3	82.6	85.0	87.0	132.0	
63	73.6	73.5	72.1	75.1	71.0	72.2	72.8	73.2	75.1	76.1	78.2	80.9	82.4	84.5	85.7	87.0	132.0	
80	72.0	70.6	69.7	69.9	71.1	71.6	71.8	72.9	74.0	75.1	76.3	78.6	80.9	82.7	84.3	84.2	131.7	
100	71.3	69.5	69.5	70.5	71.6	72.5	72.9	73.3	74.3	75.7	77.2	79.3	81.1	83.1	84.2	82.7	131.9	
125	71.4	70.9	71.4	72.4	72.1	72.7	73.4	74.5	74.9	76.2	77.8	79.7	81.5	82.9	84.1	82.1	132.1	
160	71.9	72.0	72.0	72.4	72.0	72.7	73.2	73.9	74.6	76.1	77.2	79.3	81.0	82.4	82.5	81.3	131.5	
200	72.8	72.4	73.7	73.7	74.2	74.6	73.9	75.7	75.7	77.5	77.6	79.6	81.9	81.9	81.9	80.1	131.9	
250	71.3	72.4	72.5	73.1	73.1	73.3	73.5	74.1	75.0	75.6	77.0	78.6	80.1	80.9	80.5	78.0	130.7	
315	73.7	74.0	73.8	74.2	73.6	73.4	74.0	74.4	75.0	76.6	77.5	79.0	80.3	80.4	80.3	77.6	130.9	
400	72.8	74.4	73.3	73.9	74.0	74.1	74.3	74.7	75.8	77.8	78.8	79.7	81.1	80.5	79.8	77.1	131.5	
500	72.5	72.4	72.3	73.6	73.2	73.4	74.4	75.3	75.3	76.2	78.3	78.8	79.7	80.4	79.5	78.2	75.0	131.1
630	74.7	74.0	73.4	74.8	73.5	73.5	74.0	75.5	75.9	78.6	79.6	79.8	79.0	77.2	74.4	74.4	131.0	
800	78.3	77.7	75.8	76.4	74.3	73.6	73.5	74.0	74.6	76.1	77.0	77.7	79.0	77.5	75.9	73.3	130.2	
1000	84.8	84.5	81.9	81.2	79.5	77.2	75.2	74.7	75.0	76.8	77.6	79.1	78.9	77.9	76.3	73.7	132.8	
1250	91.4	90.9	88.4	88.1	86.4	82.6	79.6	78.0	77.9	78.0	80.6	83.4	82.9	83.1	79.8	77.8	138.3	
1600	83.6	83.7	81.9	79.9	77.8	75.9	74.2	74.3	74.8	76.5	76.3	77.3	79.1	76.7	75.0	74.4	132.1	
2000	90.1	93.7	91.2	87.6	86.3	80.8	80.1	78.7	77.1	77.6	78.2	80.9	80.3	78.7	76.5	74.2	138.8	
2500	90.0	95.9	89.1	86.7	83.2	80.4	77.6	77.1	75.7	77.3	79.3	84.3	83.0	81.9	78.8	76.4	139.3	
3150	85.8	87.2	88.4	90.4	88.1	87.9	81.2	80.3	76.8	77.9	78.7	79.9	82.2	78.4	76.8	74.5	139.1	
4000	85.3	85.2	84.2	84.0	81.7	78.6	75.7	76.5	77.1	79.7	81.6	82.1	65.5	81.2	77.2	74.7	136.4	
5000	86.7	86.8	85.6	85.9	82.4	78.2	75.2	76.0	76.5	78.5	80.4	81.6	81.5	77.8	75.2	72.8	136.3	
6300	85.3	85.2	83.8	84.5	82.1	78.3	75.2	76.1	75.2	77.1	80.0	81.6	83.9	80.8	76.2	73.5	136.3	
8000	84.4	84.7	84.2	83.8	81.7	77.6	74.4	76.0	73.5	75.1	76.8	78.3	79.7	77.4	73.4	70.5	135.4	
10000	83.2	83.1	82.7	82.2	80.7	77.4	73.5	76.8	72.9	74.2	74.5	76.8	77.5	75.5	70.3	68.0	134.9	
DASPL	97.9	100.2	97.3	96.7	94.6	92.3	89.5	89.6	89.2	90.8	92.0	93.9	95.1	94.5	94.3	93.6	146.6	
PNL	110.9	114.1	110.3	111.0	108.8	107.5	103.3	103.2	101.8	103.7	105.2	107.0	108.5	106.1	103.8	101.7		
PNLT	113.3	117.4	112.5	113.5	111.4	110.3	105.1	104.4	102.8	104.0	106.4	108.8	109.8	108.0	105.2	103.0		
DBA	98.5	101.0	98.0	97.2	95.0	92.6	83.9	89.6	87.8	89.3	90.7	92.7	93.5	91.5	89.0	86.7		
APNWLW	111.7		IPNWLW	119.9		LAPNWLW	101.6		LIPNWLW	104.5		TPNWLW	118.8					

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
06-07-83	PEBBLES 40	150 FT ARC	2180	14163	SAE77	20.74	FULL SPHERE
GP MICS/FULLY TREATED/CORR FREEFIELD CORR./#21102							

## Appendix 9.1.4

16214ES/FSDR/RPMAVG

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### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - CIAE103G/P 1 2320AO

INPUT - CIAE103G/P 1 X02540	CIAE103G/P 1 X02480
CIAE103G/P 1 X02400	

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	69.1	69.5	69.5	71.1	71.7	72.3	73.1	74.1	74.9	76.4	77.9	80.1	82.4	84.7	87.7	89.9	134.4
63	73.5	73.5	73.0	76.1	73.3	72.3	73.5	74.1	75.1	77.2	77.9	80.2	82.3	85.0	87.3	88.6	134.3
80	72.4	71.6	71.6	71.6	72.4	72.8	73.5	74.7	75.7	77.1	78.7	80.9	82.0	84.6	86.7	87.0	133.9
100	72.3	71.3	72.0	72.4	72.6	73.4	74.4	75.2	76.3	77.6	79.0	81.5	85.3	86.8	85.5	134.1	
125	72.4	72.7	74.0	74.5	73.7	74.6	75.4	75.9	76.7	78.1	79.7	81.8	83.5	85.0	86.5	84.5	134.2
160	73.0	73.8	74.0	74.1	73.7	74.2	74.9	76.0	76.5	78.0	79.4	81.4	83.3	84.7	84.7	83.8	133.6
200	73.6	74.0	75.7	74.6	75.9	75.5	75.6	77.2	77.7	78.8	79.8	81.9	83.8	84.5	84.5	82.7	134.0
250	72.8	74.2	75.0	74.7	75.7	75.4	75.4	75.8	77.0	78.0	79.0	81.0	82.3	83.2	83.2	80.8	132.9
315	74.9	75.2	76.0	75.6	75.3	75.1	75.7	76.0	77.0	78.2	79.5	80.9	82.3	82.8	82.2	79.3	132.8
400	74.2	75.1	74.5	75.7	75.3	75.5	75.8	76.3	77.6	79.6	80.4	81.5	82.5	82.3	81.8	78.9	133.1
500	74.1	73.6	73.9	75.1	74.8	75.1	76.4	76.6	77.8	79.5	80.2	81.3	82.3	81.7	80.7	77.4	132.8
630	75.9	75.1	75.0	76.0	75.1	75.5	76.8	77.0	77.8	80.0	80.6	81.3	81.9	80.7	79.7	76.6	132.9
800	78.8	78.7	76.8	77.0	75.3	75.0	75.0	75.7	76.6	78.4	78.7	79.8	80.8	79.8	78.3	75.6	132.0
1000	83.1	83.4	80.8	79.6	77.7	76.2	75.2	75.6	76.4	78.1	79.4	79.3	79.8	79.1	77.9	74.5	132.7
1250	90.9	94.8	92.0	90.1	87.2	83.5	81.9	81.2	80.1	80.8	81.4	83.2	85.3	81.8	80.4	79.0	140.3
1600	85.1	85.5	84.2	82.1	80.2	77.5	76.2	76.4	76.9	78.6	79.2	80.2	80.2	79.1	77.3	77.4	134.2
2000	90.1	97.0	92.9	88.6	83.0	81.4	78.2	76.8	76.2	78.0	78.6	80.4	81.1	78.7	76.9	74.7	140.2
2500	90.6	97.1	93.0	91.0	86.6	83.1	80.8	78.4	78.0	79.4	80.2	83.7	84.7	81.8	79.0	76.2	141.8
3150	86.6	87.9	87.5	89.5	86.9	83.9	79.7	77.7	76.8	77.3	78.4	80.5	83.4	83.4	78.9	76.2	138.1
4000	87.5	88.1	86.8	87.2	85.2	81.5	78.4	78.2	78.5	80.7	81.4	81.7	81.7	79.9	77.2	75.2	138.0
5000	89.4	89.7	87.2	87.2	84.5	81.0	77.9	77.8	78.9	81.2	82.9	84.1	83.9	80.2	77.9	75.7	138.6
6300	87.4	87.7	86.2	87.2	84.8	81.3	78.3	77.2	77.2	79.1	81.8	81.4	81.4	81.3	77.8	74.9	138.7
8000	86.3	86.8	85.7	85.6	83.4	80.0	76.7	76.9	75.1	76.9	78.7	80.4	82.3	79.9	75.5	72.8	137.3
10000	84.8	84.7	83.5	83.4	81.9	79.1	75.6	77.0	73.9	76.1	76.6	78.5	80.1	77.6	72.5	70.0	136.4

APNLW= 112.3 IPNLW= 121.4 LAPNLW= 102.8 LIPNLW= 106.7 TPNLW= 120.2

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	1ALPHA	PAMB	PWL AREA
CIAE103G/P 1 2320AO	06-07-83	PEHFILES 4D	150. FT ARC	2320	16223	SAE77	28.74	FULL SPHERE

GP MICS/FULLY TREATED/GDB FREEFIELD CORR /#21102

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## Appendix 9.1.5

16214ES/FSDR/RPMAVG

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## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 1500 FT. ARC

## IDENTIFICATION

AVERAGE - CIAE103G/P 1 2500AO

INPUT - CIAE103G/P 1 X02550 CIAE103G/P 1 X02470  
CIAE103G/P 1 X02410

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	70.8	71.5	71.6	73.4	73.7	74.4	75.0	76.1	77.6	78.8	80.8	82.8	85.1	87.7	90.9	93.1	137.4
63	74.7	74.9	74.0	76.0	75.5	75.7	76.2	76.9	77.1	80.0	80.9	82.6	85.1	87.0	90.1	91.9	137.1
80	74.6	73.6	73.5	73.8	74.2	75.1	76.2	77.1	77.9	79.8	81.7	83.2	85.7	87.8	89.7	90.2	136.8
100	74.5	73.3	74.6	75.1	75.1	75.7	76.7	77.6	78.4	80.3	81.7	83.9	85.3	88.1	90.0	88.6	136.8
125	74.8	75.6	76.2	76.5	75.7	76.6	77.6	78.4	79.3	80.8	82.5	84.3	86.3	87.8	89.7	88.0	137.0
160	75.3	76.1	75.6	76.4	75.8	76.5	77.4	78.1	79.2	80.6	82.1	84.1	85.9	87.9	88.2	87.2	136.5
200	75.8	77.2	76.9	77.4	77.3	77.2	78.1	80.0	80.2	81.2	82.6	84.7	86.4	87.3	87.7	85.7	136.7
250	74.9	76.8	76.7	77.0	77.2	77.6	77.7	78.3	79.2	81.0	82.2	83.9	85.5	86.2	86.5	83.7	135.8
315	76.4	77.0	77.2	77.5	77.8	77.5	78.5	78.7	79.6	81.2	82.2	81.5	85.2	85.7	85.2	82.4	135.6
400	75.8	77.4	76.7	77.7	77.6	77.6	78.2	79.1	80.4	82.0	83.1	84.1	85.0	85.0	84.6	81.7	135.7
500	75.3	75.9	76.1	77.1	76.8	77.3	78.4	78.9	80.3	82.1	82.7	84.0	84.8	84.4	83.6	80.4	135.4
630	77.5	77.2	77.5	78.0	77.4	77.5	78.4	79.4	81.1	83.7	83.0	83.7	84.5	83.4	82.6	79.4	135.5
800	80.0	80.1	78.3	79.4	77.6	77.1	77.4	78.2	79.0	81.1	82.1	82.5	83.3	82.5	81.2	78.3	134.5
1000	82.6	82.9	81.3	80.5	78.9	77.6	77.3	77.5	78.7	80.1	81.3	82.1	82.2	81.7	80.2	77.1	134.4
1250	93.0	92.1	95.5	91.4	90.7	87.9	84.9	83.3	83.0	83.3	83.2	85.0	85.0	84.9	82.7	80.4	142.2
1600	87.7	88.0	88.8	86.6	85.1	82.6	80.6	79.1	79.8	81.3	80.9	82.3	82.7	81.7	80.2	77.6	137.6
2000	87.1	88.2	84.5	84.4	81.9	79.5	77.9	77.3	78.0	79.7	80.5	82.0	81.6	80.2	78.0	75.4	135.9
2500	99.1	97.8	96.0	92.4	89.3	88.7	85.2	82.9	82.9	82.0	82.7	84.9	86.6	83.3	81.7	79.9	144.0
3150	90.2	90.4	90.2	89.0	86.5	83.6	80.6	79.3	79.3	79.8	81.4	83.4	85.1	81.0	78.9	76.3	139.4
4000	89.1	90.3	92.0	89.8	88.9	86.7	83.2	81.1	81.7	82.8	84.2	85.7	87.6	82.1	79.7	77.4	141.3
5000	90.0	91.3	88.5	89.1	87.2	84.6	82.2	80.9	82.4	84.3	86.4	88.3	86.0	82.1	80.1	78.2	141.1
6300	89.1	89.1	88.3	88.6	86.8	83.9	81.6	79.0	79.7	81.5	84.3	86.1	86.3	82.3	79.1	76.6	140.4
8000	87.7	87.9	87.7	87.6	85.7	82.8	80.5	77.9	76.9	78.5	81.5	83.2	85.3	82.5	78.0	75.6	139.6
10000	86.2	86.4	85.9	85.8	85.0	81.9	79.4	77.1	75.8	76.3	78.5	80.6	81.6	78.9	74.2	71.5	138.5
DASPL	102.2	101.8	101.5	99.5	97.8	95.9	93.9	93.0	93.7	95.1	96.3	97.9	99.1	98.9	99.6	99.2	152.3
PNL	116.8	116.3	115.2	113.2	111.2	109.7	107.4	105.9	106.3	107.6	109.2	110.9	111.7	109.0	107.8	105.6	
PNLT	120.3	119.1	116.7	115.8	114.1	112.3	109.3	107.6	107.8	108.5	109.7	111.9	112.9	110.0	108.9	107.2	
DBA	103.0	102.5	102.2	99.9	98.1	96.0	93.3	91.8	92.3	93.4	94.6	96.2	96.9	94.5	92.8	90.4	
APNLW	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7	
IPNLW	123.6	123.6	123.6	123.6	123.6	123.6	123.6	123.6	123.6	123.6	123.6	123.6	123.6	123.6	123.6	123.6	
LAPNLW	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	105.1	
LIPNLW	109.4	109.4	109.4	109.4	109.4	109.4	109.4	109.4	109.4	109.4	109.4	109.4	109.4	109.4	109.4	109.4	
TPNLW	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	122.4	

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	ALPHA	PAMB	PWL AREA
06-07-63	PERFLES 4D	150 FT ARC	2:00	19263	SAE77	28.74	FULL SPHERE

GP MICS/FULLY TREATED/6DB FREEFIELD CORR /#21102

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## Appendix 9.1.6

16214ES/FSDR/RPMAVG

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### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - CIAE103G/P 1 2800AO

INPUT - CIAE103G/P 1	X02560	CIAE103G/P 1	X02420
CIAE103G/P 1	X02460		

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	74.3	74.9	74.9	76.6	77.6	78.4	79.2	80.3	81.5	82.9	84.8	87.2	89.4	92.9	96.5	100.0	143.0
63	77.4	77.3	76.6	78.1	78.5	78.9	79.9	81.1	82.1	83.4	84.9	87.0	89.6	92.6	95.8	98.0	142.2
80	78.5	77.6	77.1	77.7	77.8	78.9	80.2	81.4	82.5	83.7	85.6	87.8	90.2	93.0	95.4	96.1	141.8
100	79.5	78.3	79.0	79.1	79.2	79.7	81.3	82.0	83.0	84.3	86.2	88.4	90.6	93.5	93.5	94.5	142.0
125	79.7	79.6	79.4	80.1	79.9	80.9	81.4	82.5	83.5	85.1	86.8	88.7	90.4	93.2	95.5	93.5	141.9
160	78.6	80.1	79.6	80.6	79.9	80.5	81.4	82.4	83.5	84.8	86.5	88.6	90.9	93.0	94.1	92.6	141.5
200	79.5	80.7	81.3	81.8	80.5	81.3	82.2	83.5	84.3	85.5	87.0	89.0	91.2	92.8	93.3	91.7	141.5
250	78.0	80.2	80.7	81.1	81.1	81.7	82.2	82.7	83.8	85.1	86.7	88.5	90.6	91.7	92.2	89.6	140.7
315	78.6	80.0	80.1	81.0	81.3	81.4	82.4	83.0	84.1	85.2	86.6	88.2	90.1	91.3	91.0	88.3	140.4
400	77.8	79.9	79.8	81.1	81.2	81.5	82.2	83.1	84.2	85.7	87.3	88.5	90.1	90.5	90.0	86.7	140.2
500	78.2	79.3	79.5	80.9	80.7	81.5	82.6	83.2	84.7	86.1	86.9	88.1	89.0	89.7	88.6	85.7	139.8
630	79.1	79.5	80.1	81.1	81.0	81.4	82.3	83.6	85.4	86.2	87.1	88.1	89.0	88.9	87.7	84.4	139.7
800	80.9	81.5	80.1	81.3	80.7	80.9	81.8	82.6	83.7	85.3	86.1	87.3	88.2	87.5	86.0	82.9	138.8
1000	83.7	83.4	81.9	82.2	81.6	81.4	81.3	82.4	83.1	84.6	85.6	86.7	87.0	86.6	85.0	81.8	138.4
1250	88.8	90.3	90.5	88.7	86.8	85.6	84.4	84.1	83.9	84.9	85.8	86.6	87.0	86.6	85.4	81.4	140.7
1600	96.3	100.4	101.2	98.2	94.9	94.4	92.7	91.4	87.6	88.4	88.9	89.9	89.4	89.7	87.3	85.1	146.3
2000	86.6	87.3	85.8	85.2	84.3	82.6	81.9	81.6	82.4	83.8	84.4	85.8	86.2	84.4	85.7	79.4	138.7
2500	90.4	91.6	89.9	89.6	87.7	85.5	83.4	82.8	82.7	84.5	84.7	87.1	87.3	84.2	84.2	79.7	141.0
3150	97.4	94.7	95.2	96.2	94.5	91.1	89.2	85.9	84.6	87.1	86.1	87.0	87.8	85.5	84.3	81.0	145.5
4000	90.3	91.2	90.8	90.9	89.2	86.5	85.2	83.6	85.0	86.1	87.5	88.5	91.7	85.4	82.6	81.0	143.0
5000	90.5	91.4	90.6	91.0	89.6	87.1	86.0	84.5	86.3	87.5	89.7	90.1	90.2	85.6	83.0	80.8	143.6
6300	90.7	91.3	89.8	91.0	89.3	86.6	85.3	83.2	83.8	85.3	87.8	89.3	89.1	85.1	82.1	79.5	143.1
8000	88.7	89.3	88.9	89.7	88.1	85.0	84.0	81.5	80.9	82.5	85.5	87.4	88.4	84.8	80.6	78.5	142.1
10000	86.6	86.9	86.3	86.9	86.0	83.5	82.3	79.0	78.8	80.2	82.1	84.0	84.4	81.7	78.0	75.4	140.3
DASPL	102.5	103.8	103.9	102.9	100.9	99.3	98.2	97.6	97.7	99.0	100.3	101.8	103.2	103.9	105.1	105.2	156.1
PNL	117.1	116.6	116.7	116.8	115.3	113.0	111.4	110.3	110.1	111.6	113.0	114.2	115.6	113.0	112.2	109.7	
PNLT	120.0	120.5	122.3	121.5	118.4	116.4	114.5	113.1	111.6	113.0	114.3	115.4	116.7	114.4	112.6	111.3	
DBA	103.2	104.4	104.6	103.5	101.3	99.5	97.9	96.7	96.1	97.5	98.5	99.8	100.5	98.7	97.5	94.6	

APNLW= 116.1    IPNLW= 126.2    LAPNLW= 108.7    LIPNLW= 107.8    TPNLW= 125.0

IDENTIFICATION	TFST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
CIAE103G/P 1	2800AO	PEFBITS 40	150. FT ARC	2800.	25193.	SAE77	28.72	FULL SPHERE

GP MICS/FULLY TREATED/GDB FREEFIELD CORR./#21102

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QUALITY

## Appendix 9.1.7

16214ES/FSDR/RPMAVG

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## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

## IDENTIFICATION

AVERAGE - CIAE103G/P 1 3100AO

INPUT - CIAE103G/P 1 X02430 CIAE103G/P 1 X02450  
CIAE103G/P 1 X02590

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	78.0	78.7	78.6	80.5	81.0	81.8	82.9	83.9	85.1	86.3	88.3	90.9	93.6	97.1	101.9	105.9	148.1
63	81.8	80.8	80.9	81.9	81.6	82.2	83.4	84.5	85.2	87.4	89.0	91.3	94.3	97.4	100.6	103.9	147.2
80	83.1	81.8	81.2	81.9	82.0	82.6	83.6	85.0	86.2	87.4	89.6	91.9	94.0	97.6	100.7	101.8	146.7
100	83.6	82.6	82.5	83.2	83.3	83.9	84.7	85.7	86.7	88.3	90.3	92.6	95.4	98.2	101.0	99.7	146.7
125	82.8	83.4	82.8	83.8	83.7	84.5	85.2	86.2	87.3	89.9	90.8	92.8	95.5	97.9	100.7	98.7	146.6
160	82.4	84.0	83.4	84.3	83.7	84.2	85.2	86.0	87.1	89.8	90.8	93.1	95.0	98.1	99.4	97.8	146.3
200	81.8	84.2	84.7	84.9	85.1	84.9	85.8	87.2	88.2	89.0	91.2	93.2	95.3	97.5	98.6	96.7	146.0
250	81.9	83.7	84.4	84.7	84.5	85.2	85.9	86.5	87.9	89.3	91.0	92.9	95.1	97.0	97.3	94.8	145.4
315	82.1	83.1	84.3	85.1	85.2	85.2	86.1	86.8	87.9	89.4	91.0	92.9	95.1	96.0	96.2	93.1	145.0
400	81.3	83.1	83.5	84.6	85.1	85.4	86.3	86.9	88.1	89.8	91.3	93.2	94.6	95.7	94.9	91.9	144.7
500	81.4	82.4	82.9	84.5	84.9	85.4	86.4	87.2	88.6	90.2	91.2	93.0	94.2	94.6	93.7	90.4	144.3
630	82.0	83.4	83.1	84.5	84.7	85.6	86.4	87.6	88.9	90.2	91.1	92.9	93.8	93.6	92.5	89.6	144.0
800	83.6	83.6	82.1	84.1	83.9	84.6	85.7	86.8	88.1	89.7	90.6	92.1	92.8	92.5	90.9	87.9	143.2
1000	85.7	85.9	84.5	84.4	84.7	84.8	85.4	86.2	87.3	89.3	90.3	91.7	91.6	91.6	89.9	89.7	142.8
1250	89.6	90.5	89.0	86.9	86.2	85.7	86.2	86.3	87.5	88.8	89.5	91.6	91.7	90.8	89.1	85.9	143.1
1600	98.3	101.4	100.5	99.9	97.0	96.0	94.2	92.4	91.6	92.1	92.7	95.7	95.2	94.8	92.9	89.7	150.2
2000	90.6	91.8	90.8	91.0	88.5	87.9	87.3	86.7	87.1	88.7	89.5	91.3	90.7	89.8	88.2	84.9	143.7
2500	89.3	89.1	88.5	89.2	87.3	86.6	86.4	86.1	86.8	88.7	89.7	90.6	89.4	88.5	86.1	83.7	142.8
3150	96.3	95.9	97.3	97.7	94.2	91.6	90.9	89.7	89.5	90.4	91.7	92.5	90.9	89.6	87.0	85.5	147.5
4000	91.1	91.2	91.0	91.5	89.5	88.0	87.5	87.0	87.7	88.8	89.8	91.2	89.5	87.9	85.1	83.4	144.2
5000	93.7	93.8	92.7	94.3	92.1	90.4	89.3	88.8	89.6	90.9	91.8	93.0	91.0	88.3	85.9	84.0	146.4
6300	91.6	91.3	90.7	92.2	90.4	88.9	87.7	86.6	87.8	89.9	92.2	91.0	92.3	89.5	85.7	83.5	145.9
8000	89.2	89.2	89.7	90.3	88.3	86.2	85.5	84.2	84.7	86.5	89.7	90.8	89.9	87.9	83.6	81.3	144.1
10000	87.4	86.8	87.0	87.7	86.2	84.5	83.7	81.7	82.4	84.3	85.8	87.6	87.6	86.7	80.8	78.1	142.4
DASPL	103.6	104.8	104.5	104.6	102.4	101.5	101.0	100.8	101.6	103.0	104.4	106.2	107.3	108.6	110.2	110.8	159.5
PNL	117.4	117.8	118.1	118.5	116.2	114.6	114.2	113.7	114.1	115.4	116.7	118.1	117.8	117.4	116.3	114.4	
PNLT	120.2	121.3	121.6	122.2	119.4	117.7	116.7	115.7	115.6	116.5	117.8	119.1	118.9	117.7	115.8		
DBA	104.0	105.4	105.0	105.1	102.5	101.2	100.4	99.6	100.1	101.4	102.5	104.1	103.8	103.3	101.9	99.4	
APNLW	121.2	IPNLW	127.7	LAPNLW	113.5	LIPNLW	108.7	TPNLW	126.6								

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RFM	ARITH AVG FNK	1ALPHA	PAMB	PWL AREA
CIAE103G/P 1 3100AO	06-07-83	PEBBLES 4D	150. FT ARC	3100	32327	SAE77	28.72	FULL SPHERE

GP MICS/FULLY TREATED/GDB FREEFIELD CORR ./#21102

## Appendix 9.1.8

16214ES/FSDR/RPMAGB

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### AVERAGE SOUND PRESSURE LEVFLS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT ARC

#### IDENTIFICATION

AVERAGE - CIAE103G/P 1 3267AO

INPUT - CIAE103G/P 1 X02440 CIAE103G/P 1 X02570

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	80.6	81.2	81.0	82.2	83.1	83.6	84.4	85.8	87.1	89.0	91.3	92.9	95.5	98.9	105.0	110.1	151.5	
63	84.1	84.3	83.2	84.0	83.7	84.0	84.7	86.4	87.0	89.1	91.3	93.1	96.3	99.7	104.0	107.7	150.2	
80	85.4	83.6	83.0	83.5	83.8	85.2	86.0	86.5	87.7	89.7	91.9	94.1	96.5	99.9	103.0	104.8	149.1	
100	86.3	85.4	85.4	85.9	85.7	86.3	86.9	88.2	88.8	90.6	92.6	95.1	97.7	100.9	103.8	102.9	149.4	
125	84.3	85.6	85.3	85.8	85.5	86.4	87.6	88.4	89.7	90.8	92.7	95.4	97.5	100.9	103.5	101.8	149.2	
160	84.4	86.0	86.1	86.8	85.9	86.4	87.2	88.5	88.9	91.0	93.0	95.5	97.9	100.3	101.9	100.4	149.6	
200	83.7	86.3	87.2	86.9	86.8	86.6	87.9	89.4	89.6	91.6	93.6	95.7	97.7	100.4	101.2	99.5	148.5	
250	83.9	86.1	87.0	87.4	87.5	87.0	87.8	88.8	89.6	91.5	93.3	95.5	98.1	99.3	100.1	97.8	147.9	
315	84.2	85.9	86.5	87.6	87.7	87.6	88.6	88.0	89.8	92.0	93.5	95.2	97.5	99.2	98.5	96.1	147.5	
400	83.4	85.0	85.5	87.6	88.1	87.7	88.6	88.6	90.7	92.4	93.7	95.6	97.4	98.1	97.5	94.9	147.2	
500	83.1	84.3	85.7	87.3	87.7	87.5	89.0	89.3	90.8	92.1	93.8	96.0	97.0	97.4	96.5	93.6	147.0	
630	82.6	84.1	85.0	86.9	87.6	88.3	88.3	89.8	91.0	91.9	93.6	95.4	96.6	96.5	95.6	91.8	146.6	
800	84.8	84.9	84.0	85.7	87.0	86.2	87.9	89.1	90.6	91.8	92.9	95.0	95.1	95.7	93.9	90.7	145.8	
1000	85.7	87.6	87.9	86.0	86.4	87.1	87.8	88.4	90.4	91.6	92.8	94.8	94.8	93.9	92.7	88.2	145.4	
1250	88.8	90.3	90.5	80.5	87.9	87.7	87.4	88.5	90.4	91.1	92.4	91.4	94.2	93.3	91.7	88.3	145.3	
1600	97.0	97.7	98.5	97.6	97.5	97.2	94.6	94.2	93.4	96.9	96.6	98.5	95.1	93.6	95.3	91.1	150.7	
2000	94.4	94.7	94.6	94.9	94.2	93.2	91.3	91.4	91.6	92.6	93.9	95.1	95.0	95.7	93.9	90.7	145.8	
2500	89.2	88.9	88.9	89.9	89.6	88.6	88.1	88.5	89.7	91.1	91.7	94.0	91.7	90.9	88.8	87.0	145.0	
3150	98.4	96.6	93.8	95.0	93.6	91.6	91.6	90.9	90.5	91.1	92.0	93.4	91.7	90.3	88.8	86.4	147.3	
4000	94.0	93.6	92.2	93.4	93.5	91.0	90.8	90.7	91.3	91.6	92.5	93.5	91.4	89.8	88.6	85.9	146.9	
5000	92.6	93.3	93.5	93.8	93.4	91.3	90.7	90.1	91.8	93.1	94.1	96.2	92.7	90.1	88.5	86.3	147.9	
6300	90.7	90.5	91.0	92.3	90.5	89.2	88.7	88.0	90.2	92.0	91.0	95.0	93.5	91.2	88.8	86.2	147.1	
8000	88.4	88.8	89.3	90.3	88.9	86.8	85.7	84.9	86.7	88.8	92.3	93.1	91.6	89.6	86.3	84.6	145.6	
10000	86.5	85.7	86.3	86.9	86.7	84.9	84.1	82.7	84.3	86.3	88.3	90.8	89.5	88.1	85.4	83.5	143.9	
DASPL	104.3	104.3	104.1	104.4	104.0	103.2	102.7	103.7	103.0	103.8	105.5	106.9	108.8	109.4	111.0	113.0	114.3	161.8
PNL	118.9	118.2	117.1	117.9	117.1	116.0	115.7	115.5	116.3	117.6	118.9	120.7	119.5	119.1	119.0	117.0		
PNLT	121.1	120.0	119.0	119.9	119.3	118.2	117.5	116.9	116.9	119.3	120.0	122.0	119.4	119.3	120.1	117.5		
DBA	104.7	104.5	104.2	104.4	103.9	102.9	101.9	101.8	102.5	104.1	105.1	106.8	105.7	105.3	104.7	101.6		

APNLW= 123.0 IPNLW= 127.6 LAPNLW= 116.1 LIPNLW= 110.7 TPNLW= 126.7

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPH	PAMB	PWL AREA
06-07-83	PEERLESS 40	150. FT ARC	3267	35330	SAE77	28.72	FULL SPHERE

GP MICS/FULLY TREATED/608 FREEFIELD CORR /#21102

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OF POOR QUALITY

## Appendix 9.1.9

16214ES/FSDR/RPMAVG

11/14/83 9.019 PAGE 1

### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - C2AE106G/P 1 1820AO

INPUT - C2AE106G/P 1	X02810	C2AE106G/P 1	X02900
C2AE106G/P 1	X02600		

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	64.9	64.7	64.0	66.2	63.9	64.3	65.4	67.1	67.9	68.6	69.8	71.8	73.3	75.0	77.1	79.3	125.0	
63	70.7	69.0	68.7	74.2	64.6	66.0	67.1	68.2	69.4	70.6	72.8	73.5	74.9	76.0	77.6	78.6	125.6	
80	67.3	65.5	64.3	63.7	64.8	65.5	65.9	67.0	67.6	69.0	70.4	72.2	73.4	74.7	76.3	76.1	124.5	
100	67.6	66.0	65.1	65.7	67.0	67.2	66.7	68.1	69.4	70.7	71.3	73.4	74.4	76.1	77.0	74.5	125.5	
125	67.5	67.2	66.5	67.0	67.5	67.4	67.6	68.7	69.7	70.3	72.0	74.3	75.1	75.9	76.7	74.2	125.8	
160	68.3	67.6	67.4	68.7	68.7	68.1	68.5	69.3	69.7	70.1	71.3	74.4	75.1	75.7	74.6	74.1	125.6	
200	67.8	68.0	69.2	70.6	70.1	70.6	70.5	71.6	71.3	71.5	72.0	76.1	76.7	75.5	74.4	72.9	126.8	
250	68.6	69.0	69.0	69.4	69.3	68.6	68.3	68.6	69.6	70.5	71.7	73.4	74.0	74.3	72.7	71.0	125.0	
315	70.7	70.5	70.4	71.1	70.6	69.4	69.6	69.4	70.0	71.5	72.7	74.1	74.3	74.8	73.6	71.6	125.9	
400	70.8	71.1	70.5	71.0	71.1	69.9	70.3	70.5	71.4	73.8	75.2	76.3	79.8	76.1	75.1	72.8	127.4	
500	70.2	70.2	69.9	70.5	70.6	70.2	73.1	71.3	73.9	74.9	75.2	76.7	75.9	76.0	74.0	70.6	127.8	
630	72.7	72.5	71.6	71.5	71.1	70.0	70.5	70.0	71.8	73.8	74.7	75.6	74.5	74.1	71.9	69.5	126.8	
800	78.7	78.1	76.0	76.2	74.4	72.5	71.1	69.8	70.6	72.7	73.4	74.1	74.6	73.5	71.2	69.2	127.8	
1000	86.0	86.0	85.4	85.4	84.1	81.0	78.2	76.2	74.6	74.6	75.9	79.4	78.1	78.0	75.8	73.7	135.2	
1250	81.8	80.1	78.2	76.6	75.1	73.1	71.1	69.1	68.8	69.9	71.2	71.2	72.9	71.7	69.3	67.2	127.9	
1600	89.1	93.0	92.7	90.4	86.6	81.4	79.6	75.2	75.7	75.4	76.1	78.5	81.3	80.5	74.7	73.8	139.4	
2000	87.2	86.9	89.6	91.0	85.8	81.4	77.7	74.3	73.1	73.2	75.3	77.1	79.6	77.7	73.4	71.9	137.7	
2500	82.3	83.4	82.6	86.3	85.1	80.2	78.1	74.3	72.5	72.5	72.8	73.8	75.5	77.5	77.3	73.7	72.9	134.5
3150	82.9	85.8	83.2	83.4	82.3	78.0	74.9	72.2	72.2	72.9	76.2	75.8	76.2	76.2	72.4	70.6	133.5	
4000	83.9	87.6	82.8	82.6	80.8	77.4	74.1	71.9	72.2	72.7	75.5	77.4	77.5	75.8	71.7	70.6	133.8	
5000	83.4	83.8	82.3	82.5	80.5	76.9	74.2	71.3	71.2	73.0	74.9	77.9	80.0	77.7	73.1	70.2	133.4	
6300	83.9	84.5	87.6	82.5	80.8	77.2	74.7	71.1	70.0	71.5	74.4	76.0	78.8	77.2	72.4	70.9	134.7	
8000	81.4	82.3	80.0	79.9	78.1	75.3	73.3	70.1	67.2	69.1	71.9	73.7	77.6	77.1	71.1	67.4	132.1	
10000	79.1	79.0	77.2	77.1	75.6	73.3	70.7	69.8	65.3	67.0	69.0	72.5	77.9	77.0	70.2	64.5	131.0	
OASPL	95.5	97.6	96.8	96.3	93.5	89.6	87.4	85.2	85.1	85.9	87.4	89.4	90.7	90.2	88.0	87.0	146.0	
PNL	107.5	110.1	109.0	109.0	106.3	102.4	100.4	97.7	97.2	98.1	100.3	101.9	103.5	102.2	98.8	97.3		
PNLT	110.1	113.3	111.9	112.6	109.4	105.1	102.8	99.9	98.8	99.4	101.5	101.1	105.2	104.3	100.6	99.1		
DBA	96.1	98.5	97.6	97.1	94.1	89.9	87.4	84.4	84.0	84.7	86.4	88.2	89.9	88.8	84.8	83.0		

APNLW= 107.3 IPNLW= 118.0 LAPNLW= 96.0 LIPNLW= 100.5 TPNLW= 116.5

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPH	PAMB	PWL AREA
06-08-83	PELICIES 4D	150. FT ARC	1820.	9474	SAE77	28.85	FULL SPHERE

GP MICS/HALF INLET TRID/6DB FREEFIELD CORR. #09995

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## Appendix 9.1.10

16214ES/FSDR/RPMAVG

11/14/83 9.019 PAGE 1

### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - C2AE10GG/P 1 2030AO

INPUT - C2AE10GG/P 1	X02820	C2AE10GG/P 1	X02670
C2AE10GG/P 1	X02890		

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	66.5	66.4	66.0	67.6	67.0	67.8	68.6	70.4	70.7	72.2	73.4	75.7	77.0	79.2	81.5	83.9	129.0	
63	71.4	70.5	69.8	74.9	69.1	69.0	69.9	70.8	70.9	72.3	74.3	79.7	77.1	78.8	80.4	82.6	129.0	
80	69.8	67.9	66.9	67.0	68.3	68.9	69.3	70.3	71.6	72.0	74.1	76.3	77.6	79.0	80.7	80.7	128.6	
100	69.9	68.2	68.0	68.6	69.8	69.8	70.2	71.8	72.2	73.3	74.6	76.7	78.1	79.9	81.3	78.8	129.0	
125	70.6	69.1	68.6	70.3	70.5	70.1	71.0	72.1	72.6	73.7	75.3	77.2	78.5	79.9	80.9	78.4	129.3	
160	70.1	69.3	69.7	70.6	70.4	70.4	70.7	71.9	72.6	73.6	74.8	76.6	78.1	79.3	79.1	78.1	128.7	
200	71.6	70.4	72.2	72.1	72.1	73.8	71.8	73.9	73.3	75.2	75.3	76.9	79.8	79.0	78.3	77.5	129.5	
250	70.4	70.5	70.8	71.4	71.2	71.0	71.3	71.8	72.5	73.7	74.4	75.9	77.0	77.8	77.4	75.0	128.0	
315	72.7	72.1	71.8	72.3	72.3	71.5	71.8	71.9	72.9	74.1	75.1	76.5	77.2	77.5	76.9	74.5	128.4	
400	72.9	72.7	72.5	73.9	72.8	72.8	72.7	72.2	73.0	74.1	76.0	76.9	78.3	78.4	77.8	79.0	75.5	129.7
500	72.2	71.6	71.4	72.3	72.0	71.7	72.8	73.3	75.5	76.7	77.3	77.7	78.0	77.6	75.9	73.3	129.4	
600	74.6	73.4	72.9	73.6	72.9	71.8	72.4	72.9	75.2	76.5	77.3	77.1	77.0	76.4	75.0	72.5	129.2	
800	78.6	77.5	75.6	75.7	74.0	73.1	72.0	72.7	72.7	74.9	75.4	75.9	76.7	75.5	73.9	71.5	128.9	
1000	88.4	89.1	87.8	87.4	83.9	82.7	80.0	79.0	76.7	76.9	77.0	79.4	78.1	78.6	75.9	75.5	136.5	
1250	86.5	86.4	84.8	83.6	80.9	79.4	77.1	75.2	73.9	74.3	75.0	76.6	76.0	76.4	74.3	72.7	133.7	
1600	83.2	83.6	82.3	80.5	78.4	76.7	75.1	74.1	73.9	74.0	74.6	75.3	77.9	75.5	73.5	71.6	131.7	
2000	89.0	92.8	91.7	89.9	85.8	84.6	79.6	78.0	78.1	76.5	75.8	79.8	81.9	78.7	76.5	74.1	139.1	
2500	85.8	87.0	85.5	85.9	83.0	80.1	77.7	74.8	73.4	74.2	74.9	78.1	79.0	77.4	74.6	72.6	135.0	
3150	84.7	85.1	87.7	89.7	86.3	83.0	82.6	79.2	75.0	74.9	76.7	78.1	81.0	78.6	75.6	73.5	137.6	
4000	88.2	86.6	84.6	83.7	82.2	78.9	76.9	74.0	75.2	78.0	76.7	79.1	80.3	77.9	74.4	72.6	135.3	
5000	86.3	85.6	88.0	87.1	86.4	82.6	78.2	74.2	73.9	75.9	77.3	79.3	81.0	77.8	74.1	71.7	137.2	
6300	85.7	85.0	85.3	84.1	83.3	80.5	78.7	74.7	72.5	74.4	77.0	78.6	81.7	80.4	75.3	72.5	136.0	
8000	84.3	83.8	82.9	82.7	80.7	77.6	75.9	72.3	69.8	71.8	73.7	75.8	78.8	78.2	72.7	69.9	134.3	
10000	82.9	82.3	81.4	80.8	79.6	76.8	74.9	71.9	68.0	70.1	71.6	74.3	78.5	77.7	71.6	66.8	133.9	
DASPL	97.0	97.8	97.2	96.7	94.2	91.9	89.8	88.0	87.5	88.6	89.4	91.2	92.7	92.1	91.4	90.6	147.3	
PNL	110.2	111.0	110.3	110.5	108.0	105.4	104.1	101.7	99.9	101.6	101.7	103.8	105.8	104.0	101.6	99.6		
PNLT	112.2	113.2	113.5	112.9	113.1	110.2	107.5	105.9	103.3	101.4	102.5	102.1	101.8	106.7	104.9	102.1	100.7	
DBA	97.4	98.4	97.8	97.3	94.7	92.2	89.7	87.3	86.4	87.2	87.7	89.7	91.3	89.6	86.8	84.7		
APNLW	108.9		IPNLW	119.5		LAPNLW	97.5		LIPNLW	102.6		TPNLW	118.0					

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG	FNK	I ALPHA	PAMB	PWL AREA
05-08-83	PEBBLES RD	150. FT ARC	2030	12093	SAE77	28.88	FULL SPHERE	

GP MICS/HALF INLET TRTD/6DB FREEFIELD CORR. /#09995

## Appendix 9.1.11

16214ES/FSDR/RPMAVG

11/14/83 9.019 PAGE 1

## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT ARC

## IDENTIFICATION

AVERAGE - C2AE1060/P 1 2180AO

INPUT - C2AE1060/P 1 X02680 C2AE1060/P 1 X02790  
C2AE1060/P 1 X02800

## ANGLES MEASURED FROM INLET, DEGREES

FREQ.	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	67.5	67.7	67.4	69.1	69.0	69.6	71.0	72.5	73.1	74.4	76.0	78.1	79.6	81.8	84.7	87.1	131.6
63	72.1	71.8	70.6	74.4	71.3	71.6	72.3	72.6	73.0	74.7	75.9	77.9	79.8	81.6	83.3	85.8	131.5
80	71.5	69.9	69.2	69.5	71.3	71.0	71.1	72.9	73.6	74.9	76.2	78.8	80.3	82.1	83.6	83.7	131.3
100	71.0	69.1	69.6	70.7	71.4	71.8	72.5	73.4	74.4	75.4	77.0	79.3	80.9	82.6	84.2	82.1	131.7
125	70.8	70.8	71.2	72.6	71.9	72.1	73.1	74.3	74.9	75.9	77.9	79.5	81.1	82.1	83.6	81.4	131.7
160	71.0	71.6	71.7	72.5	71.9	72.3	72.7	74.2	74.6	76.0	77.3	79.3	80.6	81.8	82.0	80.8	131.2
200	72.4	71.9	73.5	73.3	74.4	74.4	73.5	75.9	76.2	77.1	77.4	80.0	81.1	81.4	81.4	80.0	131.7
250	71.0	71.9	72.5	73.0	73.3	73.2	73.6	74.0	74.9	75.8	77.0	78.6	79.4	80.1	80.1	77.7	130.4
315	73.2	73.2	73.2	74.0	73.8	73.4	74.0	74.2	75.0	76.1	77.0	78.8	79.3	79.6	79.5	77.2	130.5
400	73.6	74.1	73.4	74.2	75.0	73.8	74.1	74.5	75.7	77.7	78.6	79.8	80.3	79.5	79.8	77.1	131.2
500	73.2	72.6	72.7	73.8	73.6	73.3	74.4	75.0	76.5	78.1	78.5	79.3	79.5	78.8	77.9	74.9	130.8
630	75.2	74.5	73.7	75.6	74.1	73.3	74.5	74.8	76.2	78.7	79.4	79.6	78.9	78.5	77.2	74.4	131.1
800	78.3	77.8	76.1	76.9	74.9	73.8	73.6	73.7	74.9	76.3	77.3	77.9	78.0	77.1	75.9	73.1	130.3
1000	84.8	85.7	83.3	82.2	81.4	79.0	77.5	75.6	75.7	77.0	77.6	79.0	78.0	77.2	75.9	73.6	133.6
1250	91.2	92.8	90.5	88.1	88.5	85.0	83.3	80.2	79.8	80.8	81.3	84.0	83.3	81.2	79.4	78.2	139.6
1600	83.5	84.1	83.0	81.1	80.2	78.0	76.4	74.6	74.9	76.9	76.0	77.0	78.4	76.1	74.5	74.5	132.7
2000	91.7	96.8	94.8	89.4	91.0	81.3	81.0	78.6	76.6	78.0	78.0	80.9	79.9	78.0	76.6	74.6	141.5
2500	90.3	96.7	89.6	90.6	89.1	84.5	81.1	77.8	76.7	77.8	79.8	82.8	83.6	82.1	77.7	75.6	140.6
3150	86.5	88.3	91.7	95.6	91.1	89.0	87.0	81.8	79.3	78.5	79.0	80.1	81.8	79.1	77.1	75.6	142.2
4000	85.1	86.1	84.9	86.2	84.7	82.4	79.9	76.9	77.6	79.0	79.9	81.3	83.6	80.7	77.1	74.8	137.0
5000	86.5	88.3	87.3	86.3	84.5	81.5	79.2	75.7	76.3	78.0	79.7	80.5	80.9	77.6	74.7	73.0	137.2
6300	85.0	85.3	85.1	85.1	83.6	81.1	79.1	75.0	74.8	76.4	79.5	81.1	81.4	80.0	75.4	73.2	136.6
8000	83.9	84.8	84.8	84.6	82.8	79.9	77.5	73.5	72.3	73.4	76.0	77.7	79.3	76.8	72.4	70.8	135.6
10000	82.8	83.5	82.5	82.3	80.6	77.8	76.0	71.7	70.2	71.7	73.5	75.5	77.3	75.6	70.3	68.4	134.6
OASPL	98.2	101.7	99.4	99.3	97.6	94.0	92.4	89.8	89.6	90.8	91.9	93.6	94.5	93.9	93.8	93.4	149.6
PNL	111.1	115.0	112.5	114.3	111.5	108.9	107.3	103.8	102.7	103.4	104.5	106.3	107.5	105.7	103.3	101.6	
PNLT	113.5	117.7	115.4	116.7	114.9	111.1	109.6	105.5	104.2	104.7	103.0	108.3	109.2	107.2	104.7	103.2	
DBA	98.9	102.7	100.3	100.1	98.3	94.5	92.6	89.1	88.4	89.6	90.5	92.3	93.0	91.0	88.6	86.6	

APNLW= 111.0 IPNLW= 122.6 LAPNLW= 101.4 LIPNLW= 105.8 TPNLW= 121.3

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPH	PAMB	PWL AREA
06 08-83	PEEBLES 4D	150. FT ARC	2180	14124	SAE77	28.89	FULL SPHERE

GP MICS/HALF INLET TR10/6DB FREEFIELD CORR /#09995

## Appendix 9.1.12

16214ES/FSDR/RPMAVG

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### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - C2AE106G/P 1 2320AO

INPUT - C2AE106G/P 1	X02690	C2AE106G/P 1	X02780
	C2AE106G/P 1	X02690	

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	68.8	69.1	68.6	70.5	71.3	71.8	72.3	74.0	74.8	76.0	77.6	79.8	81.6	84.1	87.1	90.2	134.1	
63	72.2	72.5	71.5	74.5	72.7	72.3	73.2	74.3	75.2	76.6	77.8	80.1	82.0	84.4	86.0	88.5	133.8	
80	71.8	71.1	70.9	71.5	72.4	72.4	73.1	74.9	75.6	76.9	78.5	80.7	82.4	84.3	86.5	86.7	133.6	
100	72.2	70.5	71.4	72.2	72.9	73.1	74.0	75.3	76.0	77.4	78.8	81.2	82.9	84.8	86.4	84.5	133.7	
125	72.1	72.3	73.4	74.4	73.7	74.3	75.1	76.2	76.7	78.1	79.4	82.0	83.0	84.2	86.1	84.5	133.9	
160	72.3	73.1	73.5	73.9	73.7	74.0	75.0	75.9	76.7	78.0	79.2	81.4	82.8	84.2	84.6	83.5	133.4	
200	73.3	73.5	74.9	74.4	75.7	75.2	75.5	77.1	77.5	78.8	79.4	82.2	83.1	83.5	84.0	82.3	133.6	
250	72.9	74.3	74.5	74.5	74.8	75.1	75.0	75.5	75.9	77.0	77.7	79.0	81.0	82.1	82.5	82.5	80.5	132.7
315	74.7	75.1	74.9	75.7	75.6	75.1	75.6	75.9	77.0	78.1	79.1	80.7	81.6	81.9	81.6	79.6	132.5	
400	74.7	75.7	74.8	75.8	76.0	75.5	75.7	76.6	77.7	79.5	80.6	81.2	82.1	81.6	81.2	79.1	133.0	
500	74.3	74.5	74.4	75.6	75.1	76.5	76.1	76.7	77.8	79.5	80.0	81.2	81.4	81.2	80.1	76.9	132.7	
630	76.0	75.8	75.4	76.4	75.9	76.9	77.2	77.4	77.8	79.5	80.3	81.5	81.1	80.6	79.4	76.4	132.9	
800	79.3	79.0	77.2	77.5	76.6	76.2	75.0	75.6	76.6	78.2	78.7	79.9	80.1	79.1	78.3	75.7	132.0	
1000	83.6	83.5	81.9	80.8	79.6	78.1	76.9	76.1	76.4	77.7	78.1	79.1	79.0	78.5	77.0	74.3	139.0	
1250	92.6	93.8	93.3	91.8	90.0	89.7	86.4	82.9	82.1	81.9	82.1	83.5	85.0	82.3	81.3	78.4	142.0	
1600	85.1	86.1	81.4	83.2	82.1	79.9	78.9	76.7	76.5	78.1	78.5	79.7	79.4	78.2	76.5	77.0	134.6	
2000	92.7	99.2	91.5	87.0	83.7	83.1	79.6	77.0	76.4	78.4	78.6	81.2	80.4	79.5	76.7	75.7	141.1	
2500	95.1	96.5	93.8	92.0	89.8	86.2	83.5	80.4	78.9	79.4	80.4	83.2	83.6	80.9	78.8	76.9	142.1	
3150	86.8	89.2	87.7	89.9	90.5	83.9	81.3	78.7	77.1	77.2	78.7	80.8	82.4	78.6	76.8	75.1	139.1	
4000	87.0	86.6	86.9	86.3	89.3	83.9	81.9	79.7	79.1	79.9	80.9	82.5	83.1	79.7	77.1	76.0	139.1	
5000	88.7	89.2	86.0	88.0	86.2	83.0	81.9	78.5	78.8	80.9	82.7	83.2	82.7	79.6	77.5	75.3	138.9	
6300	87.2	87.8	87.5	87.1	85.7	82.8	81.5	77.2	76.7	78.3	81.2	83.7	84.7	80.3	76.9	75.1	138.7	
8000	85.6	86.6	85.5	85.5	83.9	81.1	79.5	75.8	74.4	75.3	77.8	80.2	80.3	78.3	74.7	72.9	137.1	
10000	83.6	84.5	83.5	83.5	82.3	79.2	77.8	74.1	72.3	73.7	75.2	77.8	71.3	76.0	72.0	70.0	135.9	
DASPL	100.3	103.0	99.8	98.8	97.6	95.0	93.6	91.2	91.1	92.3	93.4	95.2	96.0	95.6	96.1	96.0	150.7	
PNL	114.1	116.0	113.4	112.4	111.6	108.0	106.2	103.9	103.6	104.6	106.0	107.6	108.3	106.2	104.8	103.3		
PNLT	117.1	119.0	116.8	115.7	114.6	111.6	109.7	106.1	105.4	106.0	107.3	108.9	110.2	107.5	106.3	104.2		
DBA	101.0	103.9	100.5	99.4	98.2	95.3	93.6	90.2	89.7	90.7	91.8	93.5	94.0	91.7	90.1	88.2		

APNLW= 111.5 IPNLW= 122.3 LAPNLW= 102.7 LIPNLW= 108.3 TPNLW= 120.9

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPH	PAMB	PWL AREA
C2AE106G/P 1	2320AO	PEERLESS 4D	150. FT ARC	2320	16044	SAE77	28.89	FULL SPHERE

GP MICS/HALF INLET TRTD/60B FREEFIELD CORR /\*09995

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## Appendix 9.1.13

16214ES/FSDR/RPMAVG

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## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

## IDENTIFICATION

AVERAGE - C2AE10GG/P 1 2500AO

INPUT - C2AE10GG/P 1 X02770 C2AE10GG/P 1 X02700  
C2AE10GG/P 1 X02850

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	70.4	70.9	70.8	72.5	73.5	74.0	75.1	76.4	77.3	78.8	80.6	82.8	84.6	87.2	90.4	93.2	137.2
63	73.1	73.4	72.5	75.6	74.6	75.1	76.1	77.1	79.0	79.5	80.8	82.8	84.9	87.2	89.5	91.8	136.8
80	73.8	73.0	72.8	73.6	74.2	74.6	75.7	77.2	78.3	79.3	81.4	83.4	85.1	87.3	89.5	89.9	136.5
100	74.5	72.8	73.9	74.9	74.9	75.1	76.4	77.8	78.4	80.0	81.6	84.0	85.6	87.6	89.5	88.1	136.5
125	74.3	74.6	75.6	76.2	75.4	76.0	77.2	78.2	79.3	80.5	82.2	84.3	85.8	87.4	89.2	87.3	136.6
160	74.3	75.4	75.3	76.0	75.9	76.4	77.0	78.4	79.2	80.5	81.9	84.1	85.4	87.0	87.8	87.0	136.2
200	75.3	76.6	76.8	76.8	76.8	76.8	77.8	79.5	80.1	81.2	82.3	81.9	86.0	86.7	87.2	85.8	136.4
250	74.8	76.2	76.9	77.1	77.3	77.3	77.6	78.3	79.6	80.3	82.2	83.8	85.0	86.0	85.9	84.0	135.6
315	76.3	76.8	76.9	77.3	77.6	77.3	78.2	78.5	79.6	80.7	82.0	83.2	84.7	85.1	84.7	82.6	135.2
400	76.4	77.2	77.2	78.1	77.8	77.2	78.3	79.0	80.5	82.1	83.2	81.0	84.4	84.5	84.4	82.1	135.6
500	76.3	76.1	76.7	77.3	77.6	77.3	78.2	78.6	80.3	81.9	82.5	83.5	84.2	83.9	83.3	80.4	135.1
630	77.6	77.3	77.7	78.1	77.9	77.7	78.7	79.0	81.0	82.9	82.9	83.1	83.8	83.0	82.4	79.2	135.2
800	79.8	80.1	78.7	79.5	79.9	77.2	77.3	77.9	79.7	80.7	81.6	82.4	82.7	82.2	81.0	78.4	134.4
1000	82.8	82.9	82.0	81.6	80.4	78.6	78.3	78.1	79.1	80.3	80.7	81.9	81.6	81.3	80.1	76.8	134.6
1250	82.4	94.0	94.6	95.9	94.2	90.4	89.4	86.0	84.4	84.1	84.0	85.0	84.9	85.3	83.2	81.2	144.2
1600	87.4	89.0	89.0	89.3	87.7	84.8	83.5	80.8	80.3	81.0	81.4	82.1	82.0	81.7	79.9	78.3	138.8
2000	86.4	88.3	85.1	85.9	83.7	80.9	79.3	77.9	78.2	79.4	80.3	81.5	80.7	79.4	77.8	76.0	136.3
2500	96.2	99.6	94.5	95.4	92.4	90.8	87.5	84.9	82.5	82.2	81.6	85.3	86.5	82.3	80.9	80.0	144.9
3150	89.6	91.7	90.9	90.9	88.6	86.0	83.3	80.4	79.6	79.5	81.3	83.5	84.5	80.2	78.0	76.9	140.5
4000	89.2	90.8	91.4	92.7	93.5	90.1	87.3	83.9	83.4	82.1	83.1	85.4	86.8	81.6	79.6	78.6	143.1
5000	89.7	90.7	88.7	89.3	88.6	86.4	84.7	81.8	82.4	83.9	85.0	86.8	85.3	81.4	79.4	77.8	141.1
6300	89.2	89.3	88.1	88.6	87.2	84.9	82.0	79.3	79.6	80.9	83.4	85.2	85.2	81.2	78.5	76.4	140.2
8000	87.2	87.9	87.0	87.5	86.2	83.7	81.5	77.7	76.8	77.6	80.7	82.7	84.1	81.8	77.3	75.2	139.3
10000	85.6	86.2	85.3	85.7	84.5	82.0	79.2	75.2	74.5	75.4	77.6	79.6	80.6	77.2	73.9	72.0	138.0

APNLW= 114.0 IPNLW= 124.3 LAPNLW= 104.9 LIPNLW= 110.6 TPNLW= 123.0

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
06-03-83	PEBBLES 4D	150 FT ARC	2500	18993	SAE77	28.90	FULL SPHERE

GP MICS/HALF INLET TRTD/600 FREEFIELD CORR./#09995

## Appendix 9.1.14

16214ES/FSDR/RPMAVG

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### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - C2AE106G/P 1 2800AO

INPUT - C2AE106G/P 1 X02860	C2AE106G/P 1 X02710
C2AE106G/P 1 X02760	

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	73.5	74.0	74.2	76.6	77.5	77.9	78.7	80.3	81.3	82.8	84.4	86.7	88.8	91.9	95.8	99.9	142.5	
63	76.3	75.9	75.3	78.4	78.1	78.2	79.5	80.7	81.8	83.2	84.6	86.8	87.4	91.7	94.7	98.3	141.8	
80	77.9	76.4	76.6	77.6	78.1	78.6	79.8	81.4	82.4	83.5	85.3	87.6	89.8	92.2	94.7	95.7	141.3	
100	78.5	77.4	78.2	78.8	78.9	79.8	80.9	82.3	82.8	83.9	85.7	88.1	90.0	92.4	95.2	93.8	141.4	
125	79.2	78.8	78.7	79.6	80.1	80.6	81.2	82.5	83.4	84.7	86.3	88.6	90.3	92.4	94.8	93.0	141.4	
160	78.2	79.1	79.0	80.1	79.8	80.3	81.3	82.4	83.1	84.5	86.0	88.5	90.2	91.8	93.4	91.7	140.8	
200	79.6	80.5	80.5	81.4	80.7	81.5	82.0	83.6	84.1	85.7	86.6	88.9	90.7	91.6	92.5	91.3	141.0	
250	78.3	79.7	80.5	81.0	80.9	81.2	81.8	82.5	83.6	84.8	86.2	88.2	89.8	90.9	91.3	89.2	140.2	
315	78.9	79.8	80.2	81.0	81.3	81.2	82.1	82.6	83.6	85.0	86.1	87.9	89.3	90.1	90.2	87.8	139.8	
400	78.8	80.1	79.8	81.2	81.5	81.5	82.1	82.8	84.0	85.5	86.7	88.3	89.2	89.8	89.5	87.1	139.8	
500	79.1	79.2	79.8	80.8	81.1	81.4	82.4	82.9	84.3	85.6	86.2	87.8	88.8	88.8	88.0	85.2	139.3	
630	79.4	80.1	80.1	81.0	81.1	82.1	82.6	83.1	85.4	86.2	86.9	87.7	88.2	88.2	87.2	84.2	139.4	
800	81.2	82.0	80.6	82.1	81.0	81.2	81.8	82.5	83.3	84.9	85.9	86.8	87.0	86.8	85.7	82.4	138.4	
1000	83.2	83.4	83.2	83.4	82.3	83.1	81.7	81.8	82.0	83.0	84.7	85.0	86.3	86.6	85.9	84.6	81.8	136.2
1250	89.0	89.3	89.3	89.4	89.2	87.4	85.8	84.3	84.3	84.8	85.1	86.8	86.3	86.0	84.2	81.7	140.9	
1600	97.6	99.6	97.9	98.6	99.0	97.3	94.6	91.8	89.9	89.1	88.3	91.1	90.1	89.9	87.2	86.0	148.9	
2000	86.6	87.0	85.9	86.3	85.1	83.2	82.6	81.7	82.1	83.0	83.6	85.3	84.5	83.5	81.8	78.7	138.4	
2500	91.0	91.2	89.4	89.9	87.9	86.2	84.5	82.7	82.7	83.7	84.0	86.5	86.2	83.9	82.1	79.0	140.8	
3150	96.2	96.8	95.3	96.1	94.0	92.4	90.8	87.7	86.4	85.8	85.9	87.8	87.0	85.4	82.7	81.6	145.9	
4000	90.4	91.2	90.8	92.2	90.4	88.4	87.1	85.0	84.7	85.2	86.2	87.9	90.1	84.4	82.1	80.6	143.1	
5000	91.0	91.5	90.8	92.1	90.5	88.6	88.2	85.7	85.7	87.2	88.1	89.6	89.8	84.7	82.6	80.8	143.8	
6300	90.9	90.7	89.9	91.0	89.4	87.5	86.9	84.3	83.4	84.5	86.9	88.0	87.5	84.1	81.3	79.1	142.9	
8000	88.4	88.9	87.8	89.3	87.6	85.3	85.2	81.9	80.6	82.1	84.4	86.6	87.1	83.6	79.7	78.2	141.6	
10000	86.7	86.5	85.3	86.4	85.0	83.3	82.4	78.9	78.1	78.9	80.5	82.7	83.4	80.6	77.2	75.5	139.6	
DASPL	102.6	103.6	102.4	103.2	102.5	100.9	99.6	98.0	97.9	98.7	99.7	101.6	102.5	103.0	104.3	105.0	136.0	
PNL	116.6	117.2	116.1	116.9	115.5	114.0	113.0	111.0	110.6	111.1	112.0	113.7	114.6	112.4	111.2	109.7		
PNLT	119.9	121.0	119.5	120.5	120.4	118.9	116.5	113.9	112.8	112.8	113.3	115.4	116.1	114.2	112.6	111.7		
DBA	103.3	104.3	103.0	103.8	103.0	101.4	99.6	97.3	96.7	97.2	97.7	99.6	99.6	98.1	96.7	94.5		

APNLW= 117.3 IPNLW= 126.1 LAPNLW= 108.1 LIPNLW= 108.0 TIPNLW= 124.8

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
C2AE106G/P 1 2800AO	06-08-83	PEERIES 4D	150. FT ARC	2800	2400	SAE77	28.88	FULL SPHERE

GP MICS/HALF INLET TRTD/6DB FREEFIELD CORR. /#09995

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QUALITY

## Appendix 9.1.15

16214ES/FSDR/RPMAVG

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## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

## IDENTIFICATION

AVERAGE - C2AE106G/P 1 3100AO

INPUT - C2AE106G/P 1 X02880 C2AE106G/P 1 X02720  
C2AE106G/P 1 X02750

## ANGLFS MEASURED FROM INLET, DEGREES

REQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	77.2	77.5	77.9	79.6	80.8	80.9	82.2	83.3	84.6	86.2	88.1	90.6	93.0	96.3	101.0	105.8	147.7
63	79.7	79.0	80.2	82.2	81.4	81.5	82.8	83.9	85.1	86.5	88.4	90.9	93.7	96.7	99.6	103.9	146.7
80	82.1	80.5	80.3	80.9	81.8	82.1	83.4	84.6	85.7	87.1	89.1	91.5	94.0	97.0	99.9	101.3	146.1
100	83.4	81.5	81.9	83.0	83.4	83.5	84.5	85.3	86.4	87.9	89.9	92.4	94.9	97.6	100.0	98.9	146.1
125	82.5	82.3	82.5	83.6	83.6	83.8	84.8	86.1	86.7	88.6	90.2	92.9	95.0	97.3	99.9	97.8	146.0
160	82.0	82.8	82.7	84.0	83.6	84.1	84.7	85.9	87.0	88.4	90.2	92.6	94.9	97.2	98.7	96.9	145.6
200	82.0	83.5	84.6	85.1	85.5	84.5	85.2	87.0	88.0	88.9	90.5	91.1	95.3	96.8	97.9	96.1	145.6
250	81.8	83.2	84.2	84.8	84.7	85.0	85.5	86.2	87.5	88.7	90.5	92.7	94.7	95.9	96.6	94.3	144.8
315	82.2	82.8	84.0	85.0	85.1	85.2	85.9	86.6	87.5	89.1	90.5	92.4	94.2	95.5	95.2	92.9	144.4
400	81.5	83.0	83.2	85.0	85.2	85.4	85.9	87.2	88.0	89.5	91.1	92.7	94.2	94.7	94.5	91.2	144.3
500	82.1	82.2	83.0	85.0	85.1	85.2	86.5	86.7	88.2	89.8	90.7	92.7	93.7	94.2	93.2	94.2	144.2
630	81.6	82.9	83.0	84.9	85.1	85.2	86.1	87.1	88.6	90.1	90.6	92.2	93.1	92.9	92.2	96.0	144.0
800	82.3	82.9	82.2	84.4	84.5	84.5	85.4	86.4	87.6	88.9	90.0	91.6	92.0	91.8	90.8	90.2	142.8
1000	85.2	85.0	84.0	85.5	86.4	85.1	85.9	86.3	87.2	88.6	89.6	91.2	90.7	90.9	89.2	97.9	143.4
1250	86.9	88.6	88.2	87.6	87.5	86.6	86.8	86.6	87.5	88.5	89.0	91.3	90.4	90.3	88.4	92.2	143.0
1600	98.9	100.7	100.7	103.5	102.1	99.3	99.4	96.8	94.7	93.7	94.5	94.4	95.7	93.7	92.7	90.1	152.6
2000	90.6	91.5	91.4	93.2	91.7	89.9	89.5	88.4	87.9	88.3	88.9	90.3	89.3	89.1	87.3	84.8	144.3
2500	87.9	88.5	87.8	89.2	88.4	87.0	86.0	86.0	86.9	87.5	88.1	89.8	88.8	87.6	85.8	83.2	142.3
3150	98.0	96.0	96.3	97.9	95.9	93.9	93.4	91.7	89.8	89.6	90.4	91.9	90.1	88.9	86.8	84.6	147.9
4000	90.4	90.6	90.2	91.2	90.0	88.7	88.2	87.6	87.8	88.1	88.8	90.2	88.8	86.7	84.7	83.1	143.9
5000	92.7	93.2	92.6	94.1	92.2	91.0	90.0	89.4	89.8	90.1	90.6	92.3	90.0	88.8	85.2	83.5	146.1
6300	91.1	90.2	90.0	92.0	90.2	88.6	88.3	87.0	87.6	88.8	91.0	92.2	91.1	87.9	85.2	83.3	145.2
8000	88.3	88.3	88.2	89.8	87.9	86.8	85.9	84.4	84.5	85.5	88.4	90.0	88.5	86.1	82.7	81.6	143.4
10000	86.4	86.1	85.8	86.8	85.8	84.4	83.7	81.4	81.7	82.6	84.4	86.6	86.3	83.6	80.8	80.7	141.5

OASPL 103.9 104.2 104.2 106.3 104.9 103.0 103.0 102.0 101.9 102.6 103.9 105.6 106.7 107.8 109.4 110.9 159.6

PNL 116.1 117.3 117.4 119.2 118.0 116.1 116.2 114.9 114.3 114.6 115.9 117.5 117.2 116.5 115.8 115.5

PNLT 121.1 120.6 121.0 123.6 122.2 119.8 119.9 118.0 116.7 116.6 117.7 118.7 119.0 117.8 117.4 117.7

DBA 104.4 104.6 104.8 106.9 105.5 103.3 103.1 101.5 100.8 101.1 102.1 103.4 103.3 102.4 101.4 102.6

APNLW= 120.4 IPNLW= 128.2 LAPNLW= 112.8 LIPNLW= 108.9 TPNLW= 126.8

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPH	PAMB	PWL AREA
C2AE106G/P 1 3100AO	06-08-83	PEEBLFS 40	150. FT ARC	3100.	31546.	SAE77	28.86	FULL SPHERE

GP MICS/HALF INLET TRTD/6DB FREEFIELD CORR./#09995

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## Appendix 9.1.16

16214ES/FSDR/RPMAVG

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### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - C2AE106G/P 1 3267AO

INPUT - C2AE106G/P 1	X02730	C2AF106G/P 1	X02890
C2AE106G/P 1	X02870		

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	79.2	79.5	79.8	81.5	83.0	83.2	83.9	85.8	87.1	88.5	90.2	92.6	95.4	98.8	104.3	109.2	150.6
63	82.0	81.4	82.0	83.9	83.1	83.2	84.7	86.2	87.1	88.9	90.9	92.8	95.6	98.9	102.0	107.3	149.4
80	84.0	82.3	82.5	83.5	83.9	84.5	85.1	86.8	87.7	89.3	91.7	94.1	96.4	99.6	102.9	105.0	149.1
100	85.1	83.7	83.3	84.6	84.9	85.8	86.4	87.5	88.2	89.8	92.3	94.8	96.7	100.2	103.1	102.2	148.7
125	84.5	84.5	84.2	85.3	85.5	85.9	86.8	88.2	89.1	90.3	92.7	95.0	97.3	99.9	102.7	100.8	148.6
160	84.2	85.4	85.0	86.4	85.6	85.8	86.4	87.9	88.8	90.7	92.5	95.1	97.4	99.9	101.5	100.1	148.2
200	83.2	85.7	86.4	86.8	86.7	86.4	87.8	89.0	89.7	91.6	93.1	95.6	97.4	99.5	100.7	98.6	148.0
250	83.5	85.3	85.9	86.7	86.7	86.9	87.9	88.5	89.3	91.2	93.1	95.6	97.2	99.3	99.6	96.3	147.5
315	83.8	85.3	86.4	87.4	87.4	87.0	87.8	88.3	89.3	91.2	92.7	91.9	97.1	98.4	98.3	94.9	147.0
400	83.5	85.1	84.8	87.1	87.7	87.3	88.1	89.3	89.8	91.7	93.2	95.8	96.8	97.8	97.2	93.8	146.9
500	82.0	83.8	85.2	86.8	87.3	87.5	88.0	89.3	90.7	91.7	93.0	95.3	96.0	96.7	96.1	90.9	146.3
630	83.2	84.1	85.1	86.8	87.0	87.3	88.3	89.6	90.5	91.7	93.0	95.0	95.6	95.8	95.0	89.0	146.0
800	84.3	84.5	83.7	85.7	85.6	87.1	87.8	88.8	89.8	91.3	92.7	94.4	94.8	94.4	93.5	88.9	145.2
1000	86.5	86.9	86.3	87.2	86.8	86.6	87.4	88.6	89.5	91.2	92.2	94.5	93.8	93.4	92.4	84.4	144.9
1250	89.0	90.1	89.8	88.6	88.5	87.1	88.1	88.3	89.6	90.7	91.6	93.7	93.6	92.6	91.5	85.0	144.8
1600	99.6	100.4	102.0	100.2	100.2	99.1	99.0	97.1	94.4	99.0	96.6	96.3	96.0	93.6	92.7	91.2	152.4
2000	96.4	97.7	99.1	98.0	97.2	96.3	96.2	94.4	92.6	95.2	93.8	94.2	94.3	92.3	91.5	89.4	149.8
2500	89.1	88.8	88.9	91.5	89.2	89.1	88.7	88.8	88.8	89.6	91.3	92.0	90.9	90.9	88.5	85.2	144.5
3150	93.9	96.3	93.8	97.3	95.0	92.0	91.9	91.0	91.0	90.6	91.6	92.7	91.6	89.9	87.8	85.6	147.4
4000	92.5	93.5	92.5	94.8	94.0	91.4	91.5	90.3	91.0	90.6	91.1	92.4	90.8	89.3	87.6	85.4	146.7
5000	93.2	93.4	92.9	94.4	93.2	91.5	91.5	90.2	91.0	91.6	92.7	94.6	91.7	88.7	87.3	85.0	147.3
6300	90.2	90.4	90.6	92.5	90.5	89.4	89.5	88.1	88.9	90.3	92.6	93.7	92.8	89.7	87.2	85.0	146.4
8000	88.1	88.9	88.9	89.6	88.8	86.4	87.0	85.3	86.0	87.2	90.0	91.6	90.2	87.9	84.6	82.9	144.5
10000	85.8	85.8	85.7	86.5	86.0	84.7	84.6	82.2	82.9	84.0	86.4	88.0	87.8	85.6	83.0	81.1	142.4
QASPL	104.3	105.1	105.8	105.9	105.2	104.1	104.3	103.7	103.6	105.5	106.3	108.0	109.0	110.4	112.2	113.7	161.6
PNL	117.1	118.2	118.5	119.3	118.0	117.0	117.1	116.2	116.0	117.9	117.9	119.6	119.1	118.5	117.9	115.9	
PNLT	119.4	120.6	121.0	121.6	120.5	119.4	119.4	118.1	117.1	119.9	119.2	120.1	119.5	118.7	118.2	117.1	
DBA	104.7	105.6	106.4	106.3	105.5	104.2	104.3	103.0	102.4	104.5	104.5	105.7	105.4	104.6	103.9	100.6	

APNLW= 122.3 IPNLW= 128.8 LAPNLW= 115.5 LIPNLW= 110.4 TPNLW= 127.6

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
C2AF106G/P 1 3267AO	06-08-83	PEEBLES 4D	150. FT ARC	3267.	34530.	SAE77	28.90	FULL SPHERE

GP MICS/HALF INLET TRTD/6DB FREEFIELD CORR./#09995

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## Appendix 9.1.17

16214ES/FSDR/RPMAVG

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## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT ARC

## IDENTIFICATION

AVERAGE - C3AE107G/P 1 1820AO

INPUT - C3AE107G/P 1 X03110 C3AE107G/P 1 X03180  
C3AE107G/P 1 X02980

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	64.7	65.1	65.0	67.5	64.5	64.9	66.0	67.0	67.7	69.1	70.7	72.0	73.7	75.7	77.8	79.5	125.5
63	71.1	70.8	70.0	77.5	67.1	66.2	67.9	69.6	68.3	70.1	71.3	72.7	73.6	75.4	76.4	78.5	126.4
80	67.2	66.0	65.1	65.0	65.1	65.6	66.9	67.3	68.2	69.5	70.9	72.2	73.7	75.7	76.7	76.9	125.0
100	67.8	66.7	66.3	66.3	67.0	67.5	67.4	68.7	69.4	70.4	72.3	73.3	75.0	76.6	77.4	75.6	125.9
125	67.5	67.0	66.7	67.4	67.3	67.8	68.5	69.7	70.3	71.1	72.9	74.2	75.5	76.4	77.1	75.2	126.2
160	69.3	68.2	67.7	68.3	68.1	67.3	68.7	69.3	70.0	71.2	72.5	73.4	75.3	76.0	75.5	74.6	125.8
200	68.9	66.3	69.9	69.2	68.7	68.3	69.6	71.4	70.7	73.3	74.0	73.6	75.7	75.6	74.6	74.7	126.5
250	68.6	68.6	69.4	70.1	69.3	69.3	69.8	69.9	71.0	71.4	72.7	73.5	74.6	74.9	73.4	72.5	125.8
315	71.3	71.7	71.9	72.9	71.4	70.3	70.5	70.7	71.2	72.1	73.4	74.2	74.6	75.1	73.9	72.1	126.6
400	72.3	72.7	72.7	73.1	72.3	72.0	71.6	71.4	72.7	74.0	75.8	76.7	75.8	76.4	75.7	73.1	126.1
500	72.9	72.4	72.7	74.2	73.2	72.4	73.9	71.9	73.9	74.9	75.5	76.1	76.1	76.1	73.8	71.7	128.4
630	75.6	75.0	74.6	75.6	75.0	74.0	73.3	71.9	72.7	74.0	75.2	75.8	75.2	74.4	72.6	70.9	126.4
800	80.8	81.0	79.4	79.9	78.6	76.6	75.0	72.8	72.7	73.2	74.3	74.5	75.0	73.8	72.3	70.9	130.2
1000	90.3	91.6	89.6	91.5	89.6	86.7	89.9	81.2	77.7	76.6	77.7	79.6	79.2	82.2	78.9	78.5	139.7
1250	83.1	82.7	81.8	81.1	80.1	79.0	76.9	73.6	71.8	71.5	72.6	72.1	73.4	72.5	71.0	69.5	131.3
1600	90.8	90.8	92.1	91.6	83.3	83.5	82.8	80.4	76.0	76.5	76.6	77.0	79.2	78.4	74.3	75.4	139.1
2000	90.5	90.0	90.1	93.2	87.6	87.7	86.3	80.7	77.3	76.4	76.8	80.0	79.6	77.4	75.2	74.3	140.0
2500	86.4	87.4	89.4	93.9	90.0	90.9	87.2	82.4	77.0	77.7	76.1	76.8	78.7	77.6	75.4	75.7	141.2
3150	85.3	87.7	86.7	89.1	86.3	86.7	83.2	70.7	74.9	75.3	76.6	76.1	78.5	76.0	73.6	72.7	137.9
4000	85.7	88.9	85.0	85.7	84.5	82.5	81.0	76.2	73.3	74.2	75.3	77.7	77.1	75.5	72.8	71.0	136.2
5000	84.6	86.2	84.1	85.0	84.4	82.3	81.3	76.1	73.5	73.7	75.8	78.0	79.0	77.0	73.4	70.7	135.9
6300	85.1	86.4	88.1	85.9	84.2	81.6	79.8	74.2	71.1	71.7	74.7	75.9	77.2	76.1	72.2	71.3	136.5
8000	82.5	83.6	82.4	83.3	82.5	80.4	79.3	73.3	68.7	69.1	72.1	73.0	74.9	75.8	70.7	69.0	134.5
10000	79.2	79.9	79.1	79.8	79.6	77.3	75.7	70.0	65.8	67.0	68.8	71.5	72.9	74.7	67.1	65.3	132.2
DASPL	97.7	98.6	98.3	100.0	96.6	95.9	93.2	89.6	86.8	87.3	88.3	89.5	90.3	90.3	88.7	88.3	148.6
PNL	110.0	111.0	110.6	113.2	110.0	109.9	107.2	103.2	99.7	100.3	101.0	101.2	101.0	102.1	99.8	99.2	
PNLT	112.7	114.3	113.6	116.9	113.4	112.9	109.9	105.9	101.5	101.7	102.4	104.3	104.7	105.1	102.2	102.0	
DBA	98.3	99.2	99.0	100.8	97.2	96.7	93.8	89.9	86.3	86.5	87.3	84.7	89.4	88.8	85.9	85.2	

APNLW= 107.3 IPNLW= 121.3 LAPNLW= 97.3 LIPNLW= 104.6 TPNLW= 119.6

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
C3AE107G/P 1 1820AO	06-09-83	PEEBLTS 4D	150 FT ARC	1820	9700	SAE77	28.91	FULL SPHERE

GP MICS/HARDWALL INLET/6DB FREEFIELD CORR /#09811

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### Appendix 9.1.18

16214ES/FSDR/RPMAVG

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#### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - C3AE107G/P 1 2030AO

INPUT - C3AE107G/P 1	X03100	C3AE107G/P 1	X02990
C3AE107G/P 1	X09120		

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	66.5	67.3	66.7	68.8	67.7	68.4	69.5	70.6	71.2	72.3	73.9	75.9	77.5	79.6	82.0	84.2	129.4
63	71.9	72.7	70.9	76.2	70.3	70.9	72.2	71.1	71.4	73.3	74.7	73.9	77.6	79.4	80.7	82.5	129.5
80	70.0	68.7	68.0	67.7	68.8	69.7	70.0	71.0	71.7	73.1	74.6	76.1	78.0	79.9	81.2	81.4	129.1
100	70.0	68.6	68.6	69.0	70.5	70.5	70.8	72.7	72.8	73.7	75.6	77.1	78.9	80.7	81.7	79.9	129.7
125	69.5	69.0	69.3	70.2	70.4	70.4	71.6	72.7	73.2	74.5	76.1	77.6	79.1	80.3	81.0	79.2	129.7
160	69.8	69.6	69.9	70.6	70.0	70.2	71.4	72.2	72.9	71.3	75.5	76.6	78.5	79.9	79.4	78.6	129.1
200	70.6	70.6	71.1	71.2	71.4	71.8	71.6	73.3	73.4	75.3	76.0	76.7	70.9	79.2	78.6	77.9	129.3
250	69.8	70.4	71.1	71.0	71.3	71.1	71.9	72.4	73.4	74.0	75.5	76.4	77.4	78.0	77.3	75.5	126.4
315	72.4	72.7	73.1	72.8	72.9	72.4	73.0	72.7	73.4	74.3	75.8	76.7	77.5	77.8	76.7	74.8	128.8
400	73.7	74.1	73.8	74.7	73.8	73.5	73.2	73.2	71.3	75.7	77.3	77.9	79.1	78.2	77.2	75.3	129.9
500	74.2	74.0	74.3	74.9	74.7	73.7	73.9	74.0	74.9	76.4	77.7	77.7	78.5	77.5	76.0	73.4	129.9
630	76.7	76.1	75.5	77.1	76.0	74.8	74.6	74.3	74.9	76.4	78.2	77.7	70.3	77.2	75.8	73.0	130.4
800	79.9	80.5	78.9	79.4	78.3	76.1	75.3	74.4	73.4	75.1	76.6	71.7	77.2	75.5	74.7	72.4	130.8
1000	89.4	90.9	89.9	91.0	88.6	87.4	85.2	82.8	79.5	79.2	80.2	79.2	79.6	79.2	77.4	74.9	139.6
1250	87.7	88.8	88.2	88.3	86.6	85.1	83.2	80.3	77.5	77.1	77.3	78.1	77.7	78.2	76.9	75.2	137.6
1600	85.2	84.7	84.7	83.2	82.7	81.3	80.3	76.4	75.0	75.4	76.0	76.0	78.2	75.6	74.0	72.8	134.2
2000	95.3	92.4	94.6	91.5	88.6	88.5	87.5	84.0	79.2	79.6	78.5	80.1	81.7	79.8	77.4	76.6	141.8
2500	87.0	87.7	88.1	89.7	88.1	86.0	85.2	80.8	77.1	76.1	77.0	78.7	79.5	77.6	75.9	74.2	138.6
3150	89.5	90.9	94.5	98.1	93.7	91.2	92.4	86.9	82.3	80.1	80.7	81.4	81.2	81.0	79.1	77.1	145.1
4000	86.7	86.0	86.8	88.6	87.1	85.0	83.3	78.9	76.9	79.0	77.6	79.3	80.2	77.3	74.9	73.2	138.3
5000	86.6	86.4	86.0	89.5	89.2	86.5	81.8	70.9	76.2	76.2	77.9	74.4	80.1	76.9	74.5	73.0	139.3
6300	86.6	87.2	86.6	88.7	87.0	85.5	84.7	79.4	75.4	74.8	77.4	70.3	70.7	79.0	75.3	73.5	138.8
8000	83.7	84.9	84.1	86.1	84.4	82.3	80.9	75.7	71.2	71.5	73.8	75.2	77.1	76.4	72.6	71.0	136.5
10000	82.0	83.1	82.6	83.3	82.1	80.6	78.5	72.9	68.7	69.5	71.0	73.6	74.4	74.8	70.1	67.6	135.1
DASPL	99.4	99.3	100.2	101.6	98.8	97.0	96.5	92.4	89.6	89.8	90.6	91.6	92.7	92.4	91.9	91.4	150.8
PNL	112.8	112.4	114.2	116.5	113.4	111.4	111.5	107.1	103.8	103.1	103.9	104.9	11.9	104.9	103.2	101.6	
PNLT	115.9	114.5	116.9	119.5	115.4	113.6	114.3	109.5	105.5	104.4	105.1	105.9	11.8	106.0	104.4	102.8	
DBA	100.1	99.9	101.1	102.4	99.5	97.7	97.2	92.8	89.2	89.0	89.4	90.5	11.4	89.9	88.1	86.4	

APNLW= 110.1 IPNLW= 124.6 LAPNLW= 98.5 LIPNLW= 105.7 TPNLW= 123.2

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	ALPHA	PAMB	PWL AREA
06-09-83	PEEBLES 4D	150. FT ARC	2030	12341	SAE77	28.91	FULL SPHERE

GP MICS/HARDWALL INLET/60B FREEFIELD CORR /#09011

## Appendix 9.1.19

16214ES/FSDR/RPMAVG

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## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

## IDENTIFICATION

AVERAGE - C3AE1070/P 1 2180AO

INPUT - C3AE1070/P 1 X03090 C3AE1070/P 1 X03090  
C3AE1070/P 1 X03130

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	68.3	68.4	68.7	70.3	69.9	70.7	71.8	73.0	73.7	74.9	76.2	78.1	80.2	82.6	84.8	87.1	132.1
63	71.0	72.3	71.9	77.1	72.7	72.9	73.8	73.7	73.8	75.0	76.7	79.0	80.4	82.8	83.7	86.2	132.2
80	71.3	70.9	71.0	69.8	71.4	72.0	72.0	73.0	74.5	75.7	77.2	78.9	80.4	82.8	84.3	84.3	131.9
100	71.4	70.1	71.0	70.7	71.6	72.2	72.8	74.4	74.9	76.2	77.8	79.7	81.3	83.3	84.4	83.1	132.2
125	71.6	70.9	71.9	72.4	72.2	73.4	74.0	75.0	75.1	76.7	78.1	79.9	81.7	83.9	84.0	82.4	132.2
160	71.7	71.0	72.5	72.5	72.3	72.7	73.6	74.8	75.0	76.5	77.8	79.4	81.1	82.6	82.4	81.6	131.7
200	73.2	73.1	73.6	73.1	73.4	73.5	74.4	75.9	75.7	77.5	78.3	79.4	81.4	82.0	81.8	80.8	131.9
250	71.7	72.0	73.6	73.4	73.4	73.5	74.1	74.7	75.5	76.1	77.5	78.7	80.3	81.2	80.7	78.7	131.0
315	74.4	74.2	74.9	74.7	74.4	74.1	75.1	74.4	75.2	76.4	77.7	78.6	79.9	80.5	79.7	77.8	131.0
400	75.3	75.7	75.5	75.6	75.5	75.3	75.0	75.0	75.9	77.9	78.2	79.8	81.0	80.5	79.5	77.6	131.0
500	75.7	75.0	75.5	76.2	75.7	75.4	75.3	75.2	76.0	78.3	78.8	79.4	80.0	79.8	78.3	75.7	131.5
630	78.4	77.1	76.9	77.4	77.7	77.0	76.3	75.8	76.0	78.7	79.9	79.5	79.6	79.1	77.6	75.0	131.9
800	82.5	80.8	79.6	79.7	78.9	77.6	76.7	75.6	75.2	76.7	78.1	77.7	79.1	77.8	76.5	74.3	132.0
1000	86.7	86.4	85.6	85.5	85.3	84.5	83.0	79.5	79.0	77.8	78.9	80.2	81.0	80.5	79.3	77.6	131.8
1250	84.4	83.5	83.7	83.0	83.5	82.7	91.4	86.6	85.0	82.2	84.0	84.2	83.7	84.0	81.8	81.1	143.8
1600	88.2	85.7	85.8	84.2	83.6	82.8	81.6	78.0	76.3	77.5	78.0	77.9	79.1	78.0	75.8	75.7	135.4
2000	90.0	88.4	88.3	90.7	82.8	89.9	86.0	81.7	78.6	78.4	79.0	80.1	81.0	80.1	77.4	76.2	144.0
2500	91.1	95.2	92.5	91.2	91.8	91.3	89.8	85.6	82.9	80.9	81.1	85.0	83.1	82.0	79.6	77.7	143.4
3150	91.4	93.2	94.6	96.9	97.4	96.9	93.5	88.9	84.7	82.7	82.9	83.3	84.6	82.3	82.7	80.6	146.9
4000	88.0	89.6	89.1	90.3	91.1	89.1	88.4	84.3	81.0	80.6	81.3	81.9	85.0	81.2	78.3	76.2	141.6
5000	88.7	89.8	89.3	89.3	89.2	87.7	86.6	82.2	78.8	78.7	80.6	81.3	81.4	78.7	76.2	74.5	140.4
6300	87.7	87.7	87.9	88.6	86.4	87.2	85.9	80.7	76.6	76.8	79.6	81.1	82.9	80.1	76.4	74.4	140.0
8000	85.6	86.0	85.8	86.3	86.0	83.9	83.1	78.0	73.4	73.4	76.1	77.3	78.9	78.4	73.9	72.5	137.9
10000	83.6	83.7	83.8	83.6	84.7	81.6	80.5	75.2	70.8	71.0	72.7	75.5	75.9	78.4	71.2	69.3	136.6
DASPL	100.1	102.7	102.5	101.6	101.9	100.9	98.8	94.7	92.3	91.9	93.1	94.1	95.1	95.0	94.6	94.3	152.9
PNL	113.1	115.8	115.6	116.2	116.5	115.6	113.3	109.3	106.2	105.5	106.3	107.4	108.4	106.9	106.0	104.4	
PNLT	115.9	116.4	116.7	119.0	119.5	119.5	117.0	111.9	104.9	107.0	108.1	103.3	110.3	108.9	107.6	106.3	
DBA	100.7	103.7	103.4	102.6	102.8	101.7	99.5	95.0	92.2	91.1	92.1	93.1	93.8	92.3	90.5	88.9	

APNLW= 112.4 IPNLW= 126.1 LAPNLW= 102.5 LIPNLW= 109.7 TIPNLW= 124.8

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	AIRTH AVG FNK	I ALPH	PAMB	PWL AREA
06-09-83	PEERI FS 4D	150 FT ARC	2180	14398	SAE77	28.92	FULL SPHERE

GP MICS/HARDWALL INLET/GDA FREEFIELD CORR./#09811

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## Appendix 9.1.20

16214ES/FSDR/RPMAVG

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### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - C3AE1070/P 1 2320AO

INPUT - C3AE1070/P 1 X03080	C3AE107G/P 1 X03010
C3AE107G/P 1 X03140	

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	68.8	69.3	69.5	71.3	71.5	71.9	73.1	74.2	75.1	76.7	78.1	79.8	82.1	84.6	87.6	90.2	134.5
63	72.9	73.4	71.9	75.9	73.3	74.0	74.9	75.1	75.4	77.3	78.6	79.9	82.3	84.8	86.4	89.0	134.2
80	72.1	71.3	71.3	71.7	72.5	72.7	73.8	75.2	75.7	76.9	79.0	80.9	82.7	84.9	86.7	87.2	134.0
100	72.3	70.9	71.8	72.4	73.0	73.3	74.4	75.6	76.0	77.7	79.4	81.0	83.1	85.5	87.0	85.5	134.1
125	72.4	72.5	73.7	74.4	73.6	74.6	75.4	76.4	77.0	78.1	80.0	81.7	83.5	85.0	86.5	84.7	134.2
160	72.6	73.6	73.9	73.9	73.6	74.3	75.4	76.1	76.7	78.0	79.8	81.1	83.3	85.0	85.1	84.0	133.8
200	73.8	74.0	74.8	74.4	74.6	74.8	76.2	77.5	76.9	79.1	80.2	81.9	83.9	84.4	84.2	82.9	133.9
250	72.6	74.0	74.7	74.7	75.0	75.0	75.4	76.3	77.0	78.0	79.5	80.6	82.3	83.2	82.9	81.2	132.9
315	75.0	75.4	75.5	75.6	76.0	75.6	76.3	76.4	76.6	78.0	79.6	80.4	82.4	82.7	82.1	79.9	132.8
400	75.8	76.6	76.3	76.6	76.7	76.0	76.7	76.7	77.5	79.3	80.8	81.5	82.7	82.2	81.4	79.1	133.3
500	76.7	76.4	76.6	77.1	76.9	77.0	76.6	76.9	78.0	79.6	80.3	80.6	82.0	81.6	80.7	78.0	133.1
630	78.9	78.5	77.7	78.5	79.0	79.4	78.7	78.0	77.9	79.9	80.9	81.4	81.8	80.9	79.9	77.1	133.7
800	81.8	81.8	80.3	80.6	79.9	80.4	78.5	76.9	77.0	78.6	79.1	79.9	80.7	79.9	78.8	75.9	133.6
1000	85.1	85.1	84.5	84.2	83.5	83.3	81.3	79.0	77.6	78.7	78.9	79.2	79.8	79.3	77.6	75.9	135.4
1250	94.1	95.7	96.5	94.9	95.1	93.1	91.5	87.9	85.4	84.1	84.4	84.4	86.2	84.2	82.8	82.5	145.2
1600	86.9	87.8	87.7	86.4	86.0	84.6	83.8	80.6	70.5	78.9	79.4	79.9	80.1	79.3	77.9	77.0	137.4
2000	89.4	90.2	89.3	90.0	89.8	86.6	85.4	81.1	78.6	79.4	79.6	80.1	80.3	79.6	78.5	75.9	141.4
2500	91.9	99.0	93.6	96.6	94.1	92.2	91.2	87.1	83.3	82.1	82.1	81.1	81.3	82.6	81.5	79.1	145.5
3150	91.8	95.0	92.1	94.4	95.9	93.9	91.7	88.0	82.7	82.8	81.4	81.6	83.5	81.2	79.9	78.8	145.1
4000	91.8	92.7	90.8	92.9	94.4	92.4	90.4	86.7	82.6	82.3	82.0	82.5	83.9	80.7	79.2	77.5	144.0
5000	91.6	92.1	91.5	92.3	92.9	90.7	89.7	86.5	82.6	82.2	83.5	83.4	83.5	80.8	78.7	76.9	143.5
6300	89.2	90.4	89.6	91.2	89.9	88.7	87.5	81.0	78.0	78.8	81.0	83.2	81.1	81.6	77.7	75.7	141.8
8000	87.3	88.1	87.1	88.7	87.6	86.1	84.6	80.8	75.9	75.3	78.0	76.5	81.0	79.4	76.0	74.2	139.9
10000	85.1	85.7	84.9	85.6	85.5	83.7	82.0	78.0	73.3	73.4	74.7	77.3	77.7	76.6	72.6	71.0	138.2
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OASPL 101.5 104.5 101.7 102.7 102.6 100.6 99.3 96.0 93.1 93.4 94.2 95.2 96.6 96.5 96.7 96.6 153.7																	
PNL 115.0 118.0 114.4 116.3 116.4 114.7 113.1 109.9 106.2 106.5 106.9 107.8 108.8 107.4 106.4 104.9																	
PNLT 117.7 121.1 117.9 119.6 119.9 117.7 116.1 112.6 108.6 108.2 108.6 107.4 110.9 113.0 108.1 106.9																	
DBA 102.2 105.5 102.4 103.5 103.4 101.5 99.9 96.2 92.7 92.5 92.9 93.7 94.7 92.9 91.5 89.9																	
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APNLW= 112.6 IPNLW= 125.6 LAPNLW= 103.8 LIPNLW= 111.4 TPNLW= 124.2																	

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPH	PAMB	PWL AREA
06-09-83	PEFRNFS 40	150. FT ARC	2320	16477	SAE77	28.92	FULL SPHERE

OP MICS/HARDWALL INLET/6DB FREEFIELD CORR./#09811

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## Appendix 9.1.21

16214ES/FSDR/RPMAVG

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## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG F., 70 PERCENT R.H. DAY, SAE 150.0 FT ARC

## IDENTIFICATION

AVERAGE - C3AE107G/P 1 2500AO

INPUT - C3AE107G/P 1 X03020 C3AE107G/P 1 X03150  
C3AE107G/P 1 X03070

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
60	70.3	71.1	71.2	73.4	73.9	74.0	75.2	76.6	77.7	79.1	80.6	83.0	84.9	87.6	91.0	93.5	137.6
63	73.7	74.4	74.1	77.6	75.5	75.5	76.7	77.5	78.0	79.2	81.0	81.9	83.4	87.6	89.0	92.6	137.2
80	74.2	73.2	73.6	73.7	74.3	74.9	76.2	77.5	78.4	79.8	81.7	83.6	85.6	87.1	90.1	90.6	137.0
100	74.0	73.1	74.4	74.9	75.2	75.5	76.9	77.9	78.7	80.5	82.0	84.2	86.1	89.5	90.1	88.6	137.1
125	74.3	74.6	75.9	76.3	75.8	76.7	77.7	78.5	79.4	80.7	82.5	84.4	85.9	89.2	89.6	88.2	137.0
160	74.1	75.3	75.4	76.0	75.9	76.4	77.4	78.5	79.2	80.6	82.3	84.3	85.9	87.7	88.3	87.2	136.5
200	75.1	76.3	76.9	77.2	77.4	76.9	76.0	79.8	79.7	82.2	82.8	84.7	86.4	87.4	87.5	86.2	136.7
250	74.6	76.2	77.0	77.3	77.3	77.4	78.1	78.6	79.4	80.7	82.4	84.0	85.4	86.6	86.3	84.2	135.9
315	76.2	77.2	77.5	77.6	78.1	77.6	78.3	78.9	79.5	80.8	82.1	83.7	84.9	85.8	85.1	82.8	135.5
400	77.3	78.0	78.3	78.6	78.9	78.1	78.5	79.0	80.3	82.0	83.6	84.2	85.2	89.1	84.7	81.9	135.9
500	77.9	78.0	78.4	78.8	79.1	78.2	79.0	79.3	80.3	81.9	82.9	83.8	84.6	84.6	83.3	80.5	135.6
630	80.6	80.6	79.9	80.7	81.5	80.8	80.3	80.3	81.1	83.1	84.4	83.6	84.4	83.7	82.7	79.9	136.2
800	82.3	82.4	81.5	81.9	82.3	82.1	81.5	79.8	79.9	80.8	82.4	82.7	84.4	82.6	81.6	79.1	135.9
1000	84.9	84.9	84.6	84.9	84.2	83.8	82.8	81.2	80.3	80.7	81.8	82.2	82.3	81.9	80.6	78.0	136.8
1250	97.9	96.4	98.4	96.8	97.1	96.8	95.5	93.1	88.8	87.5	89.2	89.9	88.0	85.4	85.5	85.0	148.0
1600	92.2	91.6	93.3	91.7	92.1	91.2	90.2	87.6	84.4	83.6	84.5	85.0	84.3	82.9	81.9	80.1	143.0
2000	87.4	88.7	87.7	87.7	86.7	85.8	84.8	81.8	79.8	80.2	80.7	82.1	81.7	80.6	79.0	76.5	138.5
2500	98.0	99.1	96.9	95.2	95.1	94.5	92.9	90.2	86.3	83.9	84.6	85.7	86.1	83.5	82.6	81.4	146.7
3150	92.5	93.2	92.6	93.1	92.4	90.3	89.2	86.1	82.8	81.3	82.2	84.1	85.1	81.7	80.0	77.9	143.3
4000	92.6	95.0	94.9	96.9	96.0	94.3	93.2	89.6	86.3	84.4	84.8	86.2	86.6	83.4	82.4	80.1	146.8
5000	92.1	92.8	91.9	92.8	92.9	91.9	91.2	87.5	85.2	85.3	85.6	87.9	85.4	81.9	80.1	78.2	144.5
6300	90.9	90.6	90.6	91.0	90.7	89.5	88.4	85.3	81.9	81.4	82.6	82.0	83.3	81.7	79.0	77.1	142.8
8000	88.2	88.7	88.7	89.3	88.4	87.0	86.1	82.9	78.5	78.0	80.8	81.4	81.3	82.3	78.3	76.3	141.2
10000	86.2	86.7	86.9	86.6	86.7	85.0	83.6	79.3	75.9	75.7	77.4	79.6	79.8	77.9	74.1	72.4	139.6
DASPL	103.6	104.0	103.9	103.6	103.3	102.4	101.3	98.7	96.1	95.9	97.1	98.5	99.1	99.1	99.7	99.8	155.3
PNL	117.2	118.0	117.0	117.4	116.9	115.6	114.7	111.9	109.3	108.6	109.5	111.1	112.0	109.5	108.7	107.0	
PNLT	120.3	120.7	120.1	120.3	119.9	118.7	117.7	114.8	111.5	110.3	111.5	113.2	113.6	110.5	110.1	109.0	
DBA	104.4	104.8	104.6	104.2	104.0	103.0	101.6	99.0	95.7	94.9	95.9	97.1	97.1	94.6	93.8	92.0	
APNLW	115.2	IPNLW	127.1	LAPNLW	106.7	LIPNLW	113.6	TPNLW	125.0								

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RIM	ARITH AVG FNK	I ALPH	PAMB	PHL AREA
06-09-83	PEBBLES 4D	150 FT ARC	2500	19209.	SAE77	28.91	FULL SPHERE
GP MICS/HARDWALL INLET/6DB FREEFIELD CORR./#09811							

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### Appendix 9.1.22

16214ES/FSDR/RPHAVG

11/14/83 9.045 PAGE 1

#### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - C3AE107G/P 1 2800AO

INPUT - C3AE107G/P 1 X03160 C3AE107G/P 1 X03050  
C3AE107G/P 1 X03030

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	74.2	74.9	75.6	77.5	77.8	78.0	79.1	80.5	81.5	83.3	85.2	87.3	89.0	92.6	96.5	99.9	142.9	
63	76.8	77.0	76.5	79.4	79.5	78.5	80.1	81.6	82.0	81.0	85.6	87.0	89.9	92.6	95.1	98.0	142.3	
80	78.2	77.1	77.4	77.7	78.3	79.2	80.3	81.8	82.7	84.0	86.1	88.1	90.6	93.3	95.7	96.4	142.2	
100	79.3	77.9	78.6	79.3	79.9	79.9	81.0	82.2	83.0	84.7	86.4	89.5	90.8	93.5	95.8	94.6	142.1	
125	79.4	79.0	79.8	80.1	80.2	80.8	81.9	82.7	83.9	85.2	86.9	89.1	91.2	93.7	95.3	93.9	142.2	
160	78.6	79.8	79.7	80.3	80.3	80.7	81.0	82.9	83.3	85.0	87.0	88.8	90.8	94.4	94.2	93.0	141.7	
200	78.9	80.3	80.6	81.3	80.7	81.4	82.3	84.0	84.0	85.7	87.4	89.1	91.4	92.6	93.4	91.8	141.6	
250	78.0	80.0	81.0	81.2	81.1	81.3	82.3	83.3	84.0	85.4	87.1	88.6	90.4	91.8	91.9	89.7	140.8	
315	79.2	80.2	80.6	81.5	81.9	81.6	82.7	83.3	83.9	85.2	87.1	88.1	89.9	91.2	90.9	88.4	140.4	
400	79.6	81.0	81.3	81.8	82.2	81.7	83.1	83.0	84.4	85.8	87.7	88.9	89.9	91.6	90.5	89.8	87.2	140.4
500	80.4	80.6	80.9	82.0	82.2	82.2	83.0	83.7	84.4	85.8	87.1	88.4	89.6	90.5	88.8	85.6	140.0	
630	82.3	82.5	82.2	82.6	82.6	82.6	83.4	84.0	85.7	86.1	87.6	88.1	89.1	87.8	84.7	84.7	140.1	
800	82.5	84.1	83.7	83.8	83.4	83.1	83.1	84.0	85.4	86.4	87.1	87.8	87.7	86.6	83.2	139.3		
1000	85.8	86.2	86.4	86.2	85.6	85.0	84.5	83.9	83.9	85.1	86.2	86.9	86.9	86.9	85.1	82.0	139.7	
1250	90.9	91.0	92.2	91.7	92.8	92.2	92.8	89.8	87.0	85.9	86.5	87.9	87.4	86.7	85.5	83.4	144.1	
1600	99.4	100.7	102.6	101.7	102.7	104.3	104.9	100.7	95.5	92.1	93.6	92.8	91.2	91.9	90.2	154.4		
2000	88.2	89.2	88.6	89.0	88.9	87.8	87.5	85.5	83.9	84.2	85.0	86.0	87.5	85.0	83.3	80.6	141.0	
2500	91.7	92.4	91.4	92.3	91.3	89.6	88.2	86.6	84.5	84.9	85.4	87.3	86.6	84.7	83.1	80.5	142.9	
3150	97.9	97.5	97.4	98.1	97.7	95.9	96.0	93.4	89.8	88.1	88.3	89.7	86.8	86.9	85.7	83.3	148.8	
4000	92.4	93.9	93.2	94.9	93.9	91.9	91.0	89.0	87.0	86.6	87.5	88.9	91.4	85.6	83.3	81.8	145.7	
5000	93.6	95.1	94.9	95.7	95.3	93.4	93.0	90.6	88.9	88.2	90.0	91.6	90.2	85.6	84.1	82.3	147.1	
6300	92.2	92.5	92.5	93.6	93.3	91.7	91.1	88.5	86.2	85.3	87.9	89.3	88.6	85.2	82.5	80.4	145.5	
8000	69.0	90.2	69.6	91.6	90.8	69.0	68.6	65.3	63.1	62.0	65.1	68.9	67.6	64.6	60.8	78.9	143.7	
10000	66.9	67.6	67.8	68.2	68.9	66.4	65.9	62.7	60.3	79.3	81.2	83.6	83.4	81.7	77.3	76.0	141.7	
<hr/>																		
APNLW= 118.6		IPNLW= 129.3		LAPNLW= 106.9		LIPNLW= 110.7		TPNLW= 128.0		<hr/>								
IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA										
C3AE107G/P 1 2800AO	06-09-83	PEBBLES 4D	150. FT ARC	2400	25362	SAE77	28.91	FULL SPHERE										
GP MICS/HARDWALL INLET/GOB FREEFIELD CORR /#C9811																		

## Appendix 9.1.23

16214ES/FSDR/RPHAVG

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## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 1500 FT. ARC

## IDENTIFICATION

AVERAGE - C3AE107G/P 1 3100AO

INPUT - C3AE107G/P 1 X03040 C3AE107G/P 1 X03060  
C3AE107G/P 1 X03170

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	77.9	78.6	78.7	80.1	80.8	81.7	83.0	84.1	85.1	86.8	88.6	90.8	93.5	97.3	101.8	108.2	148.3	
63	80.6	80.3	80.0	81.3	82.0	82.2	83.0	85.0	85.7	87.2	89.0	91.0	94.3	97.8	100.6	104.8	147.8	
80	82.9	81.6	81.4	81.8	82.3	83.2	84.0	85.4	86.6	87.9	89.8	92.0	94.7	97.9	100.9	102.2	147.0	
100	83.7	82.5	82.6	83.2	83.6	84.0	85.3	85.9	87.1	88.4	89.6	92.2	95.3	98.4	101.0	100.4	147.0	
125	82.8	82.9	83.2	83.9	83.9	84.5	85.4	86.7	87.6	88.9	91.1	93.2	98.6	98.3	100.8	99.3	146.9	
160	82.3	83.7	83.3	84.4	83.9	84.2	85.5	86.5	87.2	88.6	91.1	93.1	97.2	98.2	99.6	98.3	146.4	
200	81.6	84.0	84.8	85.0	85.0	81.9	86.1	87.2	87.6	89.2	91.3	93.3	95.6	97.8	98.7	97.6	146.2	
250	81.7	83.7	84.8	85.2	84.9	85.3	85.9	86.9	87.9	89.2	91.2	93.2	95.1	97.1	97.4	95.3	145.5	
315	82.3	83.1	84.6	85.1	85.6	85.2	86.4	86.8	88.0	89.2	91.2	92.9	95.0	96.4	96.0	93.8	145.1	
400	81.7	83.8	84.1	85.2	85.5	85.6	86.5	87.4	88.5	89.5	91.7	93.3	94.8	95.6	95.1	92.3	144.9	
500	82.9	83.5	84.5	85.7	85.5	85.7	86.9	87.4	88.7	89.7	90.1	91.3	91.0	94.3	94.6	94.0	91.1	144.5
630	84.0	85.0	86.5	86.8	85.9	87.1	87.9	88.2	88.9	90.3	91.2	93.0	93.8	93.9	93.0	89.9	144.5	
800	86.3	87.4	85.7	86.3	85.9	86.0	86.7	87.5	88.3	89.4	90.5	92.4	93.1	92.9	91.5	88.4	143.7	
1000	90.1	89.2	92.6	90.3	91.7	91.2	91.7	92.1	92.8	90.2	89.6	90.6	92.1	91.9	92.2	90.2	88.1	145.4
1250	91.2	91.3	91.4	90.5	91.6	90.3	90.8	89.7	89.2	89.6	90.1	91.7	91.5	91.3	89.7	86.6	144.8	
1600	100.7	101.3	103.0	104.1	103.5	102.1	102.0	100.7	97.7	95.5	91.4	95.2	94.1	93.6	92.6	90.9	154.3	
2000	93.9	94.7	95.3	95.8	95.5	94.8	94.2	93.3	91.6	90.5	90.5	91.4	90.6	90.3	88.6	86.2	147.5	
2500	92.2	93.2	92.6	93.1	92.8	92.4	92.1	90.7	90.1	89.4	89.7	90.3	89.6	88.6	86.9	84.5	145.6	
3150	96.9	98.4	97.2	98.5	97.4	96.1	96.5	93.5	92.7	91.8	92.0	91.9	90.9	89.9	87.9	85.4	149.5	
4000	93.0	93.2	92.8	93.8	93.7	92.1	92.1	90.4	89.9	89.4	89.8	91.0	89.3	87.8	85.9	84.2	146.2	
5000	93.9	94.3	93.8	95.0	94.4	93.1	92.8	91.2	90.9	90.9	91.3	93.9	90.5	87.7	86.4	84.2	147.4	
6300	91.4	91.2	91.4	92.7	91.6	90.1	90.1	88.3	88.3	89.5	91.2	92.0	91.5	88.5	85.7	83.9	146.0	
8000	88.4	88.8	89.1	90.4	89.2	87.5	87.2	85.7	85.1	85.6	89.0	89.7	88.3	87.1	83.5	81.4	143.9	
10000	86.0	86.0	86.5	87.0	86.8	84.7	84.5	82.3	82.1	82.6	84.5	86.5	85.8	84.7	81.1	79.0	141.8	
GASPL	105.1	105.6	106.4	107.3	106.8	105.7	105.8	104.7	103.6	103.6	104.6	105.1	107.2	108.8	110.3	111.3	160.9	
PNL	118.4	119.4	119.3	120.2	119.8	118.7	118.0	117.8	116.4	116.2	116.9	117.8	117.6	117.4	116.5	114.9		
PNLT	121.1	122.2	122.6	123.9	123.1	121.9	122.0	120.8	118.8	118.0	118.3	119.0	119.6	118.6	118.3	117.6	116.4	
DBA	105.7	106.4	107.0	107.9	107.4	106.2	106.2	104.8	103.2	102.4	102.8	103.9	101.6	103.2	102.2	99.9		
APNLW	121.1	IPNLW	130.0	LAPNLW	113.6	LIPNLW	111.6	TPNWL	128.5									

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	APLTH AVG FNK	I ALPHA	PAMB	PWL AREA
C3AE107G/P 1 3100AO	06-09-83	PEBBLES 4D	150. FT ARC	3100	32503.	SAE77	26.92	FULL SPHERE

GP MICS/HARDWALL INLET/GDB FREEFIELD CORR./#09811

ORIGINAL PAGE IS OF POOR QUALITY

## Appendix 9.1.24

16214ES/FSDR/RPMAVG

11/14/83 9.060 PAGE 1

### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - C4AE109G/P 1 1820AO

INPUT - C4AE109G/P 1	X03360	C4AE109G/P 1	X03440
C4AF109G/P 1	X03230		

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	65.7	64.9	64.7	67.6	64.1	65.1	66.1	67.2	67.7	68.7	70.4	72.0	74.1	75.5	77.1	79.6	125.4
63	69.9	68.6	68.4	76.7	67.0	67.4	68.2	68.0	67.9	70.4	71.2	72.1	78.5	75.5	76.9	82.0	127.5
80	68.2	66.7	65.2	64.4	65.3	66.0	66.1	67.1	68.3	69.8	70.7	72.2	73.9	75.6	76.3	76.3	124.9
100	68.0	66.8	66.7	66.5	66.9	66.6	66.6	66.0	70.3	72.4	72.9	73.1	74.3	76.4	76.9	75.5	125.9
125	69.3	68.4	68.3	67.6	67.5	67.6	68.3	68.9	69.7	70.8	72.3	73.4	74.8	76.3	76.5	78.1	126.1
160	70.3	69.1	69.9	68.9	67.8	67.3	67.5	69.1	69.0	70.4	71.5	73.0	74.6	75.8	75.0	74.4	125.4
200	70.1	69.8	71.1	69.9	69.0	69.0	68.2	71.1	69.6	71.3	72.7	73.6	75.3	75.2	74.0	73.6	125.9
250	70.7	69.9	71.1	70.9	70.1	69.4	69.0	68.8	69.9	70.9	72.1	72.9	73.9	74.9	72.9	72.2	125.5
315	72.3	72.0	72.8	72.6	71.8	70.7	69.9	69.8	70.3	71.5	72.8	73.6	74.3	75.1	73.1	71.9	126.3
400	73.6	73.3	73.6	74.1	72.9	71.9	70.8	71.3	72.2	73.4	75.5	76.0	75.6	76.6	74.2	72.7	127.9
500	74.2	73.3	73.9	74.6	74.5	73.6	72.8	71.7	74.1	74.9	75.3	76.2	75.7	76.2	73.1	71.1	128.5
630	75.5	75.1	75.1	75.6	74.4	72.5	72.2	71.2	73.0	74.4	75.4	76.1	75.8	75.0	72.6	70.5	128.3
800	80.6	79.3	78.0	78.9	77.7	75.8	73.4	72.9	73.3	74.8	76.1	76.6	77.5	77.1	73.4	71.8	130.4
1000	90.8	88.5	88.0	90.7	88.4	86.5	81.3	81.0	80.8	82.6	84.1	86.7	84.2	89.6	83.9	82.3	140.4
1250	82.8	81.9	81.0	81.1	80.2	79.5	75.1	73.9	74.1	75.7	77.1	79.0	81.1	78.0	74.3	72.0	132.7
1600	93.5	90.2	86.9	91.7	87.7	82.6	78.9	78.2	78.3	81.7	80.9	87.4	84.5	81.4	78.1	75.9	139.7
2000	90.9	89.9	90.4	93.0	88.3	84.6	80.9	77.3	77.2	79.9	81.0	85.7	85.9	82.6	78.2	76.2	140.3
2500	85.3	86.6	93.5	93.6	95.1	89.4	86.1	79.9	77.3	79.0	80.0	81.8	81.9	79.1	76.7	75.1	142.6
3150	84.1	85.7	88.6	89.3	90.0	86.4	82.1	76.9	77.1	78.9	82.0	81.5	83.1	80.1	76.8	74.9	139.2
4000	85.1	86.7	84.2	84.7	83.3	80.8	77.3	74.4	75.6	78.0	79.9	81.1	81.2	79.1	75.5	73.4	135.9
5000	84.6	85.6	84.7	86.0	83.7	82.6	78.2	75.9	78.3	80.9	82.5	84.5	87.4	83.6	79.8	76.6	138.2
6300	88.7	86.5	86.4	85.9	82.7	80.0	76.5	73.5	75.4	77.9	81.4	83.3	83.8	82.0	77.2	74.8	137.6
8000	82.2	83.3	82.6	84.0	82.6	79.2	73.6	71.2	71.7	74.3	77.6	79.7	80.7	80.6	75.2	72.8	135.6
10000	78.9	79.7	79.3	80.4	78.0	76.2	72.9	68.6	68.5	71.1	73.2	75.6	75.9	76.8	71.6	68.3	132.6
DASPL	98.6	97.4	98.3	99.8	98.7	94.8	91.1	88.9	88.4	90.5	92.0	94.6	94.5	94.1	90.6	89.9	149.4
PNL	110.6	109.8	112.4	113.1	112.9	103.7	105.5	101.5	101.2	103.4	105.2	107.1	108.4	106.3	102.8	100.7	
PNLT	113.6	112.4	115.2	116.6	116.1	111.7	107.8	105.1	103.5	105.9	107.7	110.0	110.0	110.3	106.1	104.2	
DBA	99.2	98.1	99.2	100.6	99.6	95.5	91.7	88.9	88.3	90.5	92.0	94.0	94.5	93.8	89.4	87.4	
APNLW	113.0	IPNLW	122.2	LAPNLW	101.6	LIPNLW	104.1	TPNWLW	121.1								

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPH	PAMB	PWL AREA
C4AE109G/P 1 1820AO 06-14-83 PEERLESS 40	150 FT ARC	1820	9785.	SAE77	28.90	FULL SPHERE	

GP MICS/PERFORMANCE INLET-HWI/GDB FREEFIELD COFR./#21092

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OF POOR  
QUALITY

## Appendix 9.1.25

16214ES/FSDR/RPMAG

11/14/83 9.060 PAGE 1

## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

## IDENTIFICATION

AVERAGE - C4AE109G/P 1 2030AO

INPUT - C4AE109G/P 1 X03350 C4AE109G/P 1 X03240  
C4AE109G/P 1 X03370

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	67.7	67.3	67.1	69.1	67.4	68.3	69.6	70.6	71.4	72.6	74.2	75.9	77.7	80.0	82.0	84.4	129.6
63	71.0	71.2	70.0	76.8	70.2	71.4	71.3	71.2	71.5	73.4	74.6	75.9	80.4	80.3	81.2	84.2	130.3
80	71.0	69.6	68.1	67.7	69.3	69.8	69.6	70.9	72.3	73.1	74.0	76.5	78.2	79.9	81.0	81.2	129.1
100	70.2	68.8	69.1	69.4	69.9	69.9	70.2	71.7	72.2	74.1	75.1	76.7	78.6	80.7	81.3	80.1	129.5
125	70.9	70.3	71.0	71.1	70.4	70.6	71.4	72.1	72.9	74.2	75.9	77.3	78.8	80.1	80.7	80.6	129.7
160	71.6	71.0	71.6	71.4	69.9	71.1	70.7	72.2	72.4	74.1	75.2	76.6	78.4	80.0	79.4	78.4	129.1
200	72.3	72.9	73.7	72.7	71.7	72.1	71.6	73.1	73.4	74.9	75.9	76.7	78.8	79.1	78.3	77.7	129.3
250	71.6	71.5	73.2	73.1	72.2	71.7	71.4	72.4	73.1	74.0	75.1	76.1	77.4	78.0	76.8	75.7	128.5
315	74.6	73.9	74.9	74.6	74.1	73.0	72.6	72.6	72.9	74.5	75.6	76.1	77.3	77.8	76.8	74.7	129.0
400	75.1	75.0	75.8	75.3	74.5	73.0	72.9	73.3	74.3	75.6	77.2	78.4	78.7	79.2	77.3	74.9	130.0
500	75.4	75.2	76.1	76.3	75.8	74.1	74.1	75.3	77.1	77.6	77.7	78.4	78.0	75.7	74.1	130.3	
630	77.4	76.5	77.7	77.6	76.2	74.6	74.6	74.2	75.8	77.6	78.4	78.1	78.7	77.9	75.6	73.1	130.9
800	80.9	80.5	79.9	79.4	78.7	76.8	75.2	74.7	75.1	77.1	78.4	78.7	79.3	77.2	75.2	73.2	131.6
1000	87.8	90.0	89.8	89.4	89.3	87.5	84.4	81.9	81.6	82.3	84.8	86.2	84.7	85.7	81.7	80.4	140.3
1250	87.3	86.6	86.4	86.5	86.0	86.5	83.2	80.6	80.6	81.8	83.5	85.2	85.4	84.9	80.9	79.2	139.4
1600	85.0	86.0	84.4	84.7	82.9	81.8	78.9	76.7	78.1	80.5	81.5	83.0	85.0	80.7	77.4	75.2	136.3
2000	93.9	96.6	93.5	94.4	90.0	88.4	85.0	81.2	80.8	85.1	83.8	87.9	89.3	84.2	80.5	78.3	143.4
2500	89.4	87.9	88.9	91.1	89.0	86.3	82.3	78.8	79.0	80.8	82.5	87.3	85.6	81.8	79.2	76.5	140.2
3150	86.8	92.7	95.3	96.1	96.5	94.5	88.8	83.4	81.3	82.2	84.0	85.9	86.6	82.6	80.1	78.8	145.5
4000	87.5	87.7	87.1	87.6	85.8	84.7	81.5	77.4	78.6	81.6	82.2	84.5	85.0	81.4	78.4	75.9	138.8
5000	87.4	88.5	88.6	90.6	87.4	84.7	81.1	77.9	80.3	82.4	84.1	85.9	85.9	81.3	78.6	76.7	140.3
6300	86.7	87.0	87.4	88.7	86.8	86.1	81.5	77.1	78.3	81.2	84.5	86.4	87.9	84.7	81.1	78.4	140.5
8000	84.2	84.9	85.1	86.1	82.7	81.3	78.0	73.7	74.4	77.2	80.3	82.8	83.6	81.8	77.3	74.8	137.6
10000	82.4	82.9	83.1	83.4	81.0	79.4	75.7	71.5	71.9	74.3	76.1	79.8	79.8	78.5	74.3	71.4	135.8

GASPL 99.0 100.7 100.4 101.3 100.0 98.2 94.0 90.8 90.9 93.0 94.4 96.6 97.2 95.1 93.1 92.5 151.6

PNL 112.3 114.0 114.8 115.7 114.9 113.2 108.8 104.9 104.3 106.0 107.6 109.8 110.3 107.5 105.0 103.4

PNLT 114.5 117.2 117.3 117.9 117.9 116.2 111.1 106.7 105.6 107.5 108.8 111.2 111.7 109.0 106.2 104.6

DBA 99.7 101.5 101.2 102.1 100.8 98.9 94.6 90.8 90.8 93.0 94.3 96.7 97.2 14.2 90.9 88.9

APNLW= 114.7 IPNLW= 124.8 LAPNLW= 102.6 LIPNLW= 106.1 TPNLW= 123.7

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG ENK	I ALPHA	PAMB	PWL AREA
C4AE109G/P 1 2030AO	06-14-83	PEEBLES 4D	150. FT ARC	2030.	12435.	SAE77	26.86	FULL SPHERE

GP MICS/PERFORMANCE INLET-HWL/6DB FREEFIELD CORR./#21092

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Appendix 9.1.26

16214E3/FSDR/RPHAVG

11/14/83

9.060 PAGE 1

AVERAGE SOUND PRESSURE LEVELS  
77.0 DEG. F., 70 PERCENT R. H. DAY, SAE 150.0 FT. ARC

IDENTIFICATION

AVERAGE - C4AE1093/P 1 2180AO  
INPUT - C4AE1093/P 1 K03250 C4AE1093/P 1 X03340  
C4AE1093/P 1 K03360

ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	67.9	67.9	67.9	70.0	69.3	70.2	71.3	72.3	73.5	74.9	76.5	78.3	79.9	82.5	84.9	87.3	132.1	
63	71.4	70.9	69.9	77.2	71.3	72.1	72.4	73.5	74.6	75.0	76.6	79.0	82.1	82.9	83.9	86.0	132.3	
60	71.2	70.3	69.7	69.9	71.2	70.8	71.4	72.9	74.2	75.2	76.9	78.0	80.5	82.9	83.8	84.3	131.6	
100	70.7	69.5	70.5	70.9	71.2	71.3	71.3	73.3	74.2	76.1	77.5	79.5	81.0	83.1	84.0	82.8	131.6	
125	71.3	71.2	72.3	72.3	71.6	72.2	73.0	74.1	75.0	76.5	77.9	79.7	81.2	82.7	83.6	82.4	131.9	
160	72.0	72.4	73.2	72.7	71.3	72.5	72.6	74.0	74.6	76.1	77.2	78.3	80.7	82.3	82.1	81.4	131.4	
200	74.0	74.4	75.7	73.5	73.9	73.3	73.8	75.6	75.4	76.9	78.2	79.8	81.1	82.0	80.5	81.8		
250	72.7	73.2	74.6	74.6	73.9	73.4	73.2	74.1	75.0	75.9	77.5	78.5	80.6	80.0	78.1	130.6		
315	76.7	76.2	76.2	75.7	74.6	74.6	74.6	75.4	76.4	77.7	78.5	79.7	80.4	79.4	77.3	131.0		
400	76.1	76.4	76.2	76.5	74.9	74.8	75.2	76.5	78.2	79.6	79.9	80.2	80.3	79.1	76.4	131.6		
500	76.3	76.0	76.4	77.5	76.8	75.4	75.0	75.5	76.3	78.0	79.6	79.7	80.1	79.5	77.9	75.6	131.7	
630	76.1	77.8	77.5	76.6	76.3	76.0	76.2	76.7	79.0	80.6	80.3	80.2	79.5	77.6	74.8	132.5		
800	61.5	60.6	79.6	60.3	79.6	78.2	76.9	76.5	76.9	76.9	78.0	80.1	80.7	79.1	76.8	74.7	133.0	
1000	65.3	65.6	65.3	65.2	65.7	65.2	61.9	60.3	60.0	61.3	62.7	65.2	63.6	63.2	60.3	58.7	137.7	
1250	91.7	93.9	94.0	93.5	94.0	94.3	90.5	86.2	86.3	87.0	88.0	90.1	91.4	94.3	89.0	86.6	146.3	
1600	85.0	85.5	85.1	85.5	84.7	83.4	80.7	78.6	80.3	82.3	83.3	84.9	85.8	82.2	79.0	77.7	137.6	
2000	84.7	95.4	97.8	91.4	90.4	85.6	82.5	80.5	81.2	83.6	84.3	88.7	87.6	83.3	80.0	78.4	143.5	
2500	92.2	93.2	93.3	93.9	93.9	91.4	87.3	83.7	84.5	84.6	85.6	90.0	92.0	84.0	81.7	79.8	144.3	
3150	91.9	97.1	97.2	100.7	99.6	95.3	89.9	85.5	87.7	84.9	86.4	87.6	87.9	84.4	82.3	80.7	148.4	
4000	87.2	86.9	91.9	92.2	91.6	90.2	87.2	82.7	82.6	84.9	87.0	90.1	89.1	86.7	83.2	80.6	143.5	
5000	87.7	86.9	89.3	90.2	89.2	86.5	86.0	81.7	82.8	84.5	85.8	87.5	86.7	83.0	80.7	78.5	141.6	
6300	85.8	86.9	86.9	90.0	86.6	87.0	82.7	80.2	81.4	84.2	86.8	89.8	90.7	86.8	83.2	80.5	142.3	
8000	83.6	84.8	85.7	87.6	85.1	83.5	80.2	75.6	76.0	80.3	83.6	85.5	85.5	83.7	79.4	77.1	139.3	
10000	81.8	82.8	83.4	84.7	83.2	81.3	77.7	71.7	73.5	76.1	78.6	82.2	81.8	80.7	76.4	73.6	137.4	
DATA	100.3	102.2	103.1	103.7	103.1	100.5	96.2	93.8	94.2	95.1	96.7	100.1	99.6	98.7	96.1	95.6	134.2	
PNL	113.3	116.4	116.8	116.8	117.6	114.7	110.7	107.4	107.4	108.4	110.0	113.0	113.3	110.6	107.7	105.9		
PNL	115.5	119.1	119.8	121.5	121.0	118.0	113.7	110.3	110.3	110.1	111.8	116.7	115.6	115.0	110.8	109.3		
DPA	101.1	103.1	104.1	104.6	104.0	101.3	97.3	94.1	94.3	95.1	96.6	100.4	99.7	98.1	94.1	92.7		
APNLW	117.9	IPNLW	127.3	LAPNLW	108.5	LIPNLW	110.3	TIPNLW	126.5									

IDENTIFICATION TEST DATE LOCATION ACOUSTIC RANGE REFERENCE RPM ARITH AVG FNL IALPHA PAMB PWL AREA  
C4AE1093/P 1 2180AO 06-14-83 PEERES 40 150 FT ARC 2180 14445 SAE77 26.86 FULL SPHERE

GP MICS/PERFORMANCE INLET-HML /6DB FREEFIELD CORR ./#21092

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## Appendix 9.1.27

16214ES/FSOR/RPHAVE

## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY SAE 150.0 FT. ARC  
 IDENTIFICATION  
 AVERAGE - C4AE109G/P 1 2320AO  
 INPUT - C4AE109G/P 1 X03330 C4AE109G/P 1 X01390  
 C4AE109G/P 1 X03260

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PNL
50	69.7	69.6	69.2	71.2	71.1	71.9	72.7	74.1	75.1	76.5	78.6	80.4	82.4	85.0	87.3	90.0	134.5
60	73.7	73.9	71.1	77.1	72.6	72.9	74.0	74.9	75.0	77.5	78.6	80.0	82.5	83.9	84.2	88.7	134.3
60	71.6	71.0	71.3	72.1	72.1	72.5	73.5	73.5	75.0	76.2	77.2	79.4	80.7	82.6	85.2	86.5	134.2
100	72.1	70.9	72.2	72.4	72.5	73.0	73.0	74.1	74.1	75.2	76.0	78.6	80.9	83.2	84.9	86.2	134.1
125	72.6	72.6	72.3	74.3	73.5	74.4	73.5	74.4	75.0	75.6	77.1	78.4	80.2	81.7	83.1	85.3	86.4
160	73.7	74.1	74.6	74.5	73.6	74.6	74.6	74.6	75.0	75.9	76.7	78.3	80.4	81.0	83.0	84.9	85.4
200	76.8	75.6	76.2	75.4	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5	76.3	76.7	77.7	84.7
250	74.6	75.6	76.3	76.4	75.9	75.5	75.4	75.5	75.6	77.3	78.3	78.3	79.2	81.7	83.7	82.6	133.7
315	77.3	76.7	77.4	77.3	76.9	76.0	76.1	76.6	77.2	77.5	78.3	79.9	80.2	81.7	83.7	82.6	133.6
400	77.2	77.3	76.6	78.0	78.2	77.6	77.6	77.4	76.4	76.3	77.8	79.8	80.9	82.5	83.3	82.6	133.5
600	77.9	77.6	77.6	78.6	78.5	77.8	77.1	76.1	76.3	76.3	76.2	76.0	76.0	76.5	78.5	79.8	133.6
630	79.6	79.4	79.5	80.5	79.7	79.7	79.4	77.9	76.4	76.0	76.6	76.6	76.1	76.3	78.1	77.7	133.5
800	82.0	81.5	81.6	81.6	81.6	81.6	81.6	81.6	81.6	81.6	81.6	81.6	81.6	81.6	81.4	79.6	134.2
1000	85.0	84.6	84.1	84.1	84.5	84.1	84.1	83.4	83.4	80.8	79.3	79.8	81.6	82.7	83.7	82.6	134.4
1250	92.8	93.7	93.4	96.1	97.2	95.6	95.6	95.2	93.2	91.3	90.0	90.7	92.1	92.7	93.7	91.5	136.7
1600	96.5	97.5	97.5	97.5	97.5	96.5	96.5	96.5	96.5	96.5	96.5	96.5	96.5	96.5	96.5	97.9	146.2
2000	92.6	97.7	91.2	91.4	88.7	85.3	83.2	82.6	80.5	82.0	83.0	84.2	85.2	86.2	87.3	88.6	139.2
2500	99.5	98.6	94.2	95.3	93.2	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	92.3	142.2
3150	92.1	94.9	93.6	98.4	98.4	95.9	95.9	95.9	95.9	95.9	95.6	94.7	91.4	90.5	96.1	92.6	146.0
4000	90.6	92.5	93.0	96.0	94.0	94.2	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0	146.6
5000	90.9	91.7	91.2	92.1	92.2	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5	91.5	145.4
6300	95.6	99.7	93.2	91.1	89.0	88.4	88.4	87.2	87.2	87.2	87.2	87.2	87.2	87.2	87.2	87.2	143.6
8000	86.1	87.1	87.9	88.6	88.6	87.7	86.6	86.0	82.8	82.8	82.8	85.4	87.7	90.2	91.8	86.7	141.0
10000	63.3	64.5	65.2	65.3	64.0	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	63.1	141.0
117.9	117.7	115.3	116.1	116.1	116.3	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	136.6
PNL	117.4	120.3	117.9	121.6	120.3	119.7	115.4	111.1	110.4	112.4	113.5	115.3	116.2	113.2	110.7	109.9	136.6
PNL	103.6	105.0	102.5	104.8	103.5	102.6	99.0	95.1	95.0	96.6	98.0	99.6	102.3	97.4	94.2	92.9	136.6
CASPL	102.9	104.0	101.6	104.0	101.6	102.8	102.8	102.1	98.4	95.0	95.0	96.9	98.2	102.2	98.8	97.4	97.3
IPNLW	117.9	117.7	115.3	116.1	116.1	116.3	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	136.6
LIPNLW	110.4	111.5	116.1	116.1	116.3	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	136.6
TPNLW	125.6	111.5	116.1	116.1	116.3	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	116.0	136.6

IDENTIFICATION TEST DATE LOCATION ACOUSTIC RANGE REFERENCE RPM ARITH AVG FNU PNL AREA  
 C4AE109G/P 1 2320AO 06-14-83 PEBBLES 4D 150. FT ARC 2320. 1673. SAE77 28.89 FULL SPHERE  
 GP MICS/PERFORMANCE INLET-HNL / 6DB FREEFIELD CORR / #21092

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## Appendix 9.1.28

16214ES/FSDR/RPMAVG

11/14/83 9.060 PAGE 1

### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - C4AE1090/P 1 2500AO

INPUT - C4AE109G/P 1 X03400	C4AE109G/P 1 X03320
C4AE109G/P 1 X03270	

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	70.6	70.4	71.0	73.6	73.6	74.4	75.4	76.5	77.8	79.3	81.0	82.6	84.9	87.9	90.6	93.9	137.6
63	72.6	72.5	72.6	78.3	74.6	75.0	76.0	77.4	78.5	80.0	81.4	82.6	85.7	87.6	89.3	92.1	132.0
80	73.5	73.0	73.2	73.6	74.3	75.2	76.0	77.8	78.6	80.2	81.6	82.2	85.4	87.3	89.7	90.5	136.8
100	74.3	73.0	74.4	74.9	74.9	75.5	76.5	78.8	78.8	80.3	82.0	84.0	85.6	86.3	89.6	88.6	136.8
125	74.6	75.0	76.3	76.4	75.7	76.5	77.4	78.4	79.4	80.6	82.7	84.3	85.8	87.9	89.2	87.8	136.8
160	75.6	75.9	76.5	76.5	75.7	76.7	77.0	78.5	79.3	81.0	82.4	84.0	85.5	87.2	87.9	86.9	136.4
200	77.0	77.4	77.4	77.6	77.4	77.4	77.9	79.4	80.4	82.0	83.0	84.4	85.9	87.6	87.0	85.8	136.6
250	76.2	77.0	78.3	77.9	77.8	77.7	77.9	78.6	79.6	81.2	82.5	83.6	85.3	86.3	85.7	83.9	135.8
315	78.3	78.0	78.7	79.0	78.8	78.0	78.2	78.8	79.7	80.9	82.3	83.4	84.5	85.5	84.7	82.4	135.5
400	79.0	79.5	79.6	80.0	79.0	78.1	78.6	79.2	80.5	82.6	83.5	84.7	85.2	85.3	83.9	81.6	136.0
500	79.3	78.9	79.2	79.9	79.7	78.7	78.6	79.1	80.6	82.1	82.9	84.0	84.5	84.5	83.2	80.6	135.7
630	81.2	80.6	80.1	81.6	81.7	80.9	80.1	79.9	81.0	83.1	83.5	83.9	84.4	83.8	82.6	79.4	136.3
800	82.9	82.6	81.8	82.3	82.4	80.9	80.9	80.0	80.5	82.2	83.1	83.9	84.3	83.1	81.5	79.0	136.3
1000	85.2	84.6	84.3	84.7	84.6	83.7	81.8	81.0	81.6	82.5	83.9	85.2	84.6	82.9	81.0	78.9	137.6
1250	96.7	95.6	96.1	98.9	99.2	99.0	95.1	92.9	90.0	89.9	95.1	98.8	99.5	92.2	90.0	88.6	150.5
1600	91.7	92.0	92.1	83.8	91.3	93.9	90.5	88.0	86.0	87.0	90.5	93.4	91.9	89.9	86.8	84.3	115.8
2000	88.2	88.4	87.5	87.6	86.8	85.6	83.6	81.9	83.0	84.9	86.4	88.1	85.9	83.8	81.0	78.9	140.2
2500	97.6	100.1	94.7	95.6	93.9	93.4	90.9	87.2	87.8	89.6	88.6	92.7	91.2	96.6	94.0	92.4	140.9
3150	91.6	94.4	92.4	93.4	91.6	90.0	87.7	85.1	86.1	87.4	89.1	91.6	90.4	86.2	83.4	81.3	144.5
4000	93.9	96.6	95.0	95.9	96.1	95.2	91.7	87.6	87.1	89.3	89.5	92.9	93.0	93.8	85.2	83.3	147.6
5000	91.3	92.3	92.2	93.2	92.8	92.5	90.1	85.8	86.7	88.4	89.5	91.9	90.3	85.6	83.7	81.9	145.5
6300	89.2	90.2	91.0	91.4	90.1	89.3	87.1	89.0	85.1	88.1	90.2	92.1	90.7	86.7	83.3	81.6	144.6
8000	87.0	88.5	88.5	89.9	87.8	86.6	84.5	80.5	81.6	84.9	88.0	90.8	91.2	88.7	83.9	81.4	143.6
10000	84.7	86.2	86.0	86.9	85.6	84.4	82.0	76.9	78.3	81.5	83.4	86.9	86.4	84.2	79.9	77.2	141.0
DASPL	103.1	104.6	102.8	104.3	103.9	103.4	100.3	97.8	97.4	98.8	101.0	103.9	103.9	101.0	100.2	100.2	156.6
PNL	116.9	118.7	116.3	117.3	116.9	116.2	113.5	110.5	110.6	112.4	113.6	116.3	116.3	113.0	110.7	109.1	
PNLT	119.6	121.6	118.9	120.5	120.2	119.6	116.5	113.3	112.6	114.1	116.2	119.5	119.7	114.9	112.8	111.4	
DBA	103.9	105.5	103.5	104.9	104.5	104.0	100.8	98.0	97.3	98.7	100.9	103.9	103.9	99.1	96.5	94.6	

APNLW= 120.6 IPNLW= 126.8 LAPNLW= 112.2 LIPNLW= 113.9 TPNLW= 126.3

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
06-14-83	PEFBFLFS 4D	150 FT ARC	2500	19471	SAE77	26.89	FULL SPHERE

GP MICS/PERFORMANCE INLET-HWL/6DB FREEFIELD CORR /#21092

ORIGINAL PAGE IS  
OF POOR  
QUALITY

## Appendix 9.1.29

16214ES/FSDR/RPMAVG

11/14/83 9.060 PAGE 1

## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT ARC

## IDENTIFICATION

AVERAGE - C4AE109G/P 1 2800AO

INPUT - C4AE109G/P 1 X03410 C4AE109G/P 1 X03300  
C4AE109G/P 1 X03290

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	74.3	74.2	74.6	76.9	77.4	78.6	79.4	80.7	82.1	83.5	85.2	86.8	89.4	92.9	95.9	100.2	142.9
63	76.6	76.0	77.9	81.4	78.7	79.4	80.3	81.3	81.9	84.0	85.5	87.0	89.7	92.6	94.5	97.9	142.0
80	77.9	76.5	77.0	77.4	78.0	78.8	80.0	81.5	82.6	84.1	86.0	87.8	90.2	93.0	94.9	96.6	141.9
100	79.1	77.6	79.0	79.1	79.3	79.8	80.7	82.1	83.1	84.9	86.5	89.3	90.5	93.5	95.2	94.7	141.9
125	79.4	78.6	79.4	79.9	79.7	80.6	81.1	82.8	83.6	85.1	86.8	88.8	90.9	92.9	94.6	93.6	141.8
160	78.8	79.4	79.7	80.2	79.6	80.5	80.9	82.3	83.4	84.9	86.4	88.5	90.5	92.8	93.4	93.0	141.3
200	79.4	80.0	80.9	80.9	81.0	81.1	81.7	83.3	84.0	85.7	87.0	88.8	90.9	92.4	92.6	91.6	141.2
250	79.0	79.9	80.9	81.2	81.1	81.3	81.7	82.9	84.8	85.0	86.9	88.3	90.0	91.7	91.2	89.6	140.5
315	80.0	80.4	81.6	82.0	81.6	81.7	81.9	82.7	83.8	85.2	86.6	88.6	90.0	90.8	90.1	87.9	140.2
400	80.5	81.2	81.5	82.7	81.9	81.6	81.8	82.9	84.0	85.4	87.5	88.4	89.4	91.4	89.2	86.7	140.1
600	81.8	81.4	81.5	82.3	82.3	82.0	82.5	82.9	84.3	85.9	86.8	88.1	89.1	89.5	87.9	85.4	139.7
630	83.3	82.8	82.1	83.3	82.9	83.3	82.2	83.5	85.2	86.3	87.4	87.6	88.5	86.8	84.2	82.2	139.8
800	83.7	83.9	83.2	83.7	83.4	82.7	82.2	82.8	83.7	85.4	86.6	87.4	87.8	87.4	85.7	83.1	139.2
1000	85.5	86.1	85.4	85.6	85.4	84.3	83.2	83.9	84.0	85.4	86.3	87.3	87.3	86.6	84.7	82.3	139.6
1250	90.0	90.6	90.9	91.9	92.5	91.2	88.9	86.7	86.4	87.4	89.2	90.7	90.0	87.3	85.1	83.1	143.8
1600	100.8	101.2	101.1	102.1	103.6	102.3	99.7	96.6	93.6	94.1	94.7	97.1	98.9	92.7	90.7	90.6	153.4
2000	87.8	88.7	88.9	89.9	89.1	87.7	86.1	85.0	85.4	86.9	88.2	89.5	88.4	86.4	83.6	81.9	142.0
2500	91.0	91.2	90.6	91.9	90.0	89.0	87.1	85.9	87.1	89.6	89.8	91.3	90.1	86.8	82.9	82.7	142.7
3150	94.9	96.3	97.1	97.9	96.6	95.2	93.1	89.9	89.4	92.1	93.2	93.2	93.2	89.3	86.4	85.3	148.5
4000	91.4	93.3	93.8	94.5	93.2	91.8	89.3	87.9	88.7	91.4	93.6	94.1	93.6	89.5	86.5	85.3	147.0
5000	92.4	94.9	95.6	95.6	94.8	93.5	91.3	87.9	89.4	91.1	93.2	94.9	93.5	89.7	87.8	85.6	148.0
6300	90.5	91.0	91.3	93.6	91.7	90.9	88.5	85.3	85.9	88.5	90.8	92.6	93.8	87.9	84.4	82.9	145.6
8000	87.1	88.3	88.4	91.5	89.0	87.1	85.2	82.2	82.5	85.5	88.9	90.5	90.7	87.5	83.2	81.3	143.9
10000	84.6	85.7	86.1	87.7	86.6	84.6	82.7	78.5	80.0	82.5	84.9	87.4	86.5	81.7	80.7	78.7	141.6
DASPL	103.9	104.8	105.1	106.0	106.1	104.9	102.7	100.5	100.0	101.6	103.1	104.6	105.2	104.4	104.6	105.6	156.6
PNL	116.8	117.6	118.1	119.0	118.9	117.7	115.7	113.6	113.0	115.1	116.2	117.9	117.6	115.3	113.4	112.3	
PNLT	120.8	121.4	121.9	122.7	124.1	123.0	119.8	117.2	113.6	117.4	116.7	120.2	121.0	117.2	115.5	115.0	
DBA	104.6	105.5	105.8	106.6	106.9	105.6	103.2	100.5	99.6	101.3	102.7	104.1	101.2	100.6	98.5	97.2	

APNLW= 122.0 IPNLW= 128.6 LAPNLW= 109.6 LIPNLW= 110.0 TPNLW= 127.9

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
06-14-83	PEPHIES 4D	150 FT ARC	2800	25639	SAE77	28.69	FULL SPHERE

GP MICS/PERFORMANCE INLET-HWI GDB FREFIELD CORR./#21092

### Appendix 9.1.30

16214ES/FSDR/RPHAVG

11/14/83 9.060 PAGE 1

## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 1500 FT. ARC

## IDENTIFICATION

AVERAGE - C4AE109G/P 1 3100AO

INPUT - C4AE109G/P 1 X03420 C4AE109G/P 1 X03430  
C4AE109G/P 1 X03310 C4AE109G/P 1 X03290

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	77.7	77.9	78.8	80.5	81.0	81.9	82.7	84.0	85.3	86.9	88.9	90.9	93.5	97.4	101.4	106.3	148.2	
63	80.1	80.1	80.2	81.6	81.9	82.3	83.4	84.4	85.6	87.4	89.2	91.1	94.1	97.5	99.6	104.0	147.0	
80	82.5	81.1	81.2	81.4	81.6	82.7	83.7	85.0	86.0	87.9	89.6	92.2	94.6	97.6	99.8	102.1	146.6	
100	83.7	82.0	82.4	83.0	83.1	83.8	84.4	85.5	86.7	88.5	90.3	92.5	93.1	96.6	100.2	100.0	146.6	
125	82.7	82.5	83.2	83.4	83.2	84.3	84.9	86.2	87.1	88.8	90.9	92.7	95.5	98.2	99.9	98.6	146.4	
160	82.5	83.4	83.7	84.1	83.4	83.9	84.7	86.0	86.9	88.6	90.9	92.6	95.2	97.9	98.6	98.1	146.0	
200	82.3	83.7	84.6	84.4	84.4	85.3	86.9	87.8	89.6	91.3	93.1	95.6	97.5	97.6	97.0	145.9		
250	82.0	83.2	84.6	84.6	84.2	84.9	85.6	86.4	87.5	89.0	91.0	92.8	94.9	96.9	96.6	94.8	145.1	
315	82.3	82.9	84.3	85.8	85.4	85.0	85.8	87.3	87.7	89.1	90.9	92.6	94.8	96.4	95.2	93.3	144.8	
400	82.2	83.8	84.6	85.3	85.7	85.5	85.6	87.2	88.0	89.6	91.2	93.0	94.3	95.4	94.4	92.1	144.5	
500	83.3	84.5	85.9	86.7	86.3	86.2	86.6	88.1	88.6	91.0	92.5	93.6	94.6	93.3	90.8	144.2		
630	84.4	87.7	88.5	89.0	88.4	88.7	88.1	87.4	89.8	90.3	91.3	92.6	93.4	93.5	92.1	89.7	144.6	
800	84.9	87.0	85.8	86.9	88.0	88.2	87.1	86.9	87.9	89.5	90.4	91.7	92.3	92.6	90.9	88.5	143.6	
1000	87.8	89.1	89.3	89.7	89.1	88.9	88.2	87.9	89.3	90.5	91.6	91.5	91.6	89.6	87.2	143.9		
1250	90.6	91.3	91.6	91.1	90.1	89.4	88.3	87.6	88.5	89.2	90.4	92.0	91.2	91.3	88.7	86.4	144.3	
1600	100.8	103.3	100.8	102.6	103.4	103.9	102.4	99.7	96.5	97.1	100.0	100.2	97.8	95.5	93.9	92.2	154.9	
2000	93.8	95.0	94.2	95.8	95.9	96.1	94.5	92.0	90.7	91.3	92.6	92.9	94.5	94.2	93.0	90.1	87.6	148.3
2500	90.9	90.6	90.4	92.4	91.7	91.5	90.6	88.9	88.7	91.0	92.0	92.9	94.9	94.4	95.1	95.4	145.1	
3150	97.1	96.8	97.5	96.0	96.6	95.8	94.0	94.2	92.5	94.0	94.4	95.7	94.1	91.0	88.9	88.0	149.6	
4000	91.8	91.7	91.6	93.3	91.7	91.3	90.6	89.6	90.3	91.7	93.3	94.2	92.0	90.1	87.5	86.1	146.7	
5000	92.6	93.2	92.1	94.5	92.7	92.0	90.6	89.8	91.3	93.6	95.5	97.3	97.7	91.0	88.8	87.6	146.4	
6300	89.7	89.3	89.0	92.0	89.0	87.8	87.0	88.4	91.0	93.7	96.0	94.7	92.1	89.0	87.0	147.0		
8000	86.3	87.2	86.6	89.3	86.0	85.4	84.3	83.3	84.3	87.3	91.0	92.7	90.6	90.2	88.2	84.7	144.5	
10000	83.7	84.4	83.4	86.0	83.4	82.7	81.6	79.7	81.3	84.5	86.8	89.7	87.8	87.6	83.9	81.8	142.2	
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GASPL 104.8 106.1 105.0 106.5 106.3 106.5 105.2 103.6 103.0 104.4 106.3 107.7 107.8 108.9 109.6 111.1 161.0																		
PNL 118.1 119.0 118.5 119.6 119.2 119.4 118.2 116.6 116.0 117.6 119.1 120.5 119.4 118.4 117.0 116.0																		
PNLT 121.0 122.4 121.2 122.6 122.7 123.1 121.9 119.9 118.3 119.8 121.8 122.8 121.1 119.6 118.4 117.7																		
DBA 105.4 106.6 105.6 107.1 106.9 107.1 105.7 103.6 102.3 103.7 105.6 106.0 105.3 104.2 102.4 100.6																		
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APNLW= 123.7 IPNLW= 129.5 LAPNLW= 113.4 LIPNLW= 111.2 TPNLW= 128.6																		

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPH A	PAMB	PWL AREA
C4AE109G/P 1 3100AO	06-14-83	PEEBLES 4D	150 FT ARC	3100	32334	SAE77	28.89	FULL SPHERE

GP MICS/PERFORMANCE INLET-HWL/GOB FREEFIELD CORR./#21092

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## Appendix 9.1.31

16214ES/FSDR/RPHAVG

11/14/83 9.065 PAGE 1

## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

## IDENTIFICATION

AVERAGE - CSAE110G/P 1 1620AO

INPUT - CSAE110G/P 1 X03490 CSAE110G/P 1 X05490

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	68.8	68.5	68.2	68.9	68.3	68.7	69.6	69.4	69.4	70.7	71.7	72.9	73.5	76.2	78.3	80.4	126.8
63	71.5	70.9	70.3	76.4	69.8	70.9	70.2	70.6	69.5	71.8	72.1	72.8	81.6	76.5	70.1	84.2	129.4
80	70.5	69.9	69.5	69.4	69.6	70.8	70.5	71.4	70.1	72.4	72.3	74.2	75.1	76.3	77.4	77.6	126.9
100	71.4	70.9	70.5	71.2	71.5	72.0	72.9	73.0	71.2	74.7	74.0	75.3	76.4	77.1	78.2	77.3	126.2
125	73.7	73.0	72.9	74.0	73.5	73.7	74.5	74.4	72.7	73.0	72.6	75.9	76.9	77.3	78.3	80.3	129.0
160	76.0	75.4	75.0	75.5	75.1	74.4	75.2	74.0	73.1	72.4	72.7	74.2	76.5	77.4	77.2	77.7	129.0
200	77.1	76.7	77.0	77.1	76.5	76.1	76.3	75.7	74.2	73.5	74.8	75.4	78.1	78.1	77.8	78.4	130.3
250	76.1	76.1	76.4	76.9	76.3	75.2	74.6	74.3	74.5	71.5	73.0	74.6	76.3	77.0	77.0	76.3	129.3
315	75.3	74.9	75.6	76.4	75.8	75.9	74.1	73.7	73.1	71.7	73.6	74.6	75.7	76.1	76.2	75.3	128.6
400	75.0	75.0	75.5	76.5	76.3	75.9	74.8	74.1	74.0	74.1	75.9	76.9	76.4	75.6	75.8	75.9	129.6
500	74.6	74.6	74.9	75.8	76.6	75.9	74.1	73.3	75.0	75.4	75.5	77.0	76.5	76.4	74.2	72.3	129.5
630	76.3	75.6	75.7	76.6	75.5	73.3	73.0	71.9	72.5	74.2	74.9	76.2	75.3	74.2	72.5	70.4	128.5
800	81.2	79.9	78.5	79.2	78.5	76.0	74.3	72.2	71.9	72.9	74.1	74.7	75.3	73.3	72.0	70.7	129.8
1000	82.4	80.6	87.8	90.8	87.8	84.9	91.1	79.8	75.5	75.8	77.9	80.3	79.6	80.0	80.1	76.8	130.4
1250	83.5	82.4	81.4	80.9	80.4	78.6	75.5	72.2	70.0	71.5	72.0	72.9	73.1	70.9	70.3	68.7	131.0
1600	95.3	88.4	89.5	93.1	89.2	82.1	81.3	77.7	78.4	78.2	78.0	80.2	81.6	80.7	76.6	76.7	139.9
2000	91.9	90.0	90.9	92.2	88.2	84.6	80.7	76.9	74.1	77.2	74.9	79.2	80.1	77.6	75.4	74.3	139.4
2500	86.1	97.6	95.4	93.9	94.0	90.4	85.9	80.4	77.1	75.4	76.9	79.4	80.0	80.4	77.1	77.6	142.8
3150	85.0	86.1	89.2	90.1	88.8	85.8	81.1	76.4	74.1	74.0	76.5	77.0	78.7	76.1	73.8	72.9	138.4
4000	86.6	87.7	85.3	85.8	85.1	81.7	78.7	74.5	72.3	73.9	75.5	76.4	77.0	74.3	71.7	70.4	135.9
5000	86.1	85.8	86.0	86.7	84.7	83.7	78.9	74.0	72.8	74.2	76.1	80.1	80.1	76.5	73.3	70.9	136.5
6300	89.8	88.1	88.5	86.7	84.0	80.8	78.2	74.0	71.4	73.3	75.3	78.1	77.6	75.5	71.6	71.2	137.2
8000	84.2	85.9	84.2	85.0	84.2	80.8	78.4	74.4	70.3	72.1	73.7	76.1	76.1	75.6	71.7	70.5	135.9
10000	81.7	82.8	81.4	81.6	80.6	78.0	77.0	74.5	70.1	70.9	71.9	76.0	74.0	73.7	67.9	66.4	134.0
DASPL	100.1	97.9	99.7	100.3	98.5	95.2	92.0	88.8	87.0	87.8	88.4	90.8	91.6	90.7	89.8	90.5	149.2
PNL	112.3	110.8	114.1	113.8	112.9	109.8	106.3	102.2	99.8	99.8	101.1	103.6	103.9	103.2	100.9	100.7	
PNLT	115.7	113.3	116.7	117.4	115.7	112.5	108.4	104.4	101.3	101.1	102.7	105.6	105.7	105.8	103.9	103.1	
DBA	100.7	98.3	100.5	101.0	99.3	95.7	92.0	87.9	85.6	86.6	87.2	90.0	90.2	89.0	86.7	85.7	

APNLW= 108.2 IPNLW= 123.3 LAPNLW= 97.1 LIPNLW= 104.6 TPNLW= 121.5

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
CSAE110G/P 1 1620AO	06-14-83	PEEBLES 4D	150. FT ARC	1620	8667.	SAE77	26.87	FULL SPHERE

GP MICS/HWL PERFORMANCE INLET,TRTD EXH/6DB FRFLD CORR/#63462

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### Appendix 9.1.32

16214ES/FSDR/RPMAVG

11/14/83 9.065 PAGE 1

#### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - CSAE110G/P 1 2030AO

INPUT - CSAE110G/P 1 X03500 CSAE110G/P 1 X05500

#### ANGLES MEASURED FROM INI.FT., DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	67.6	67.4	66.9	68.8	67.4	68.6	69.4	70.4	70.5	71.7	73.6	75.4	78.0	79.5	82.2	84.4	129.5	
63	71.7	71.3	69.6	76.3	69.8	71.0	70.5	70.5	71.1	72.9	74.4	75.2	82.3	79.7	81.3	85.3	130.6	
80	70.8	69.2	67.5	68.0	69.6	69.4	69.2	70.4	71.9	72.5	74.1	76.2	77.9	79.7	81.2	81.2	129.0	
100	69.9	68.3	68.6	69.4	69.7	69.3	70.3	71.2	72.0	73.7	74.6	76.5	78.7	80.4	81.7	79.8	129.3	
125	70.5	70.0	71.0	71.3	70.6	70.3	72.3	72.7	73.3	74.3	75.2	77.1	78.7	80.0	81.0	81.2	129.7	
160	71.3	70.8	71.5	72.0	70.3	70.6	70.5	72.0	72.1	73.6	75.0	76.8	78.7	79.6	79.5	78.7	129.1	
200	72.5	72.1	72.9	72.5	72.2	71.8	72.2	72.7	73.4	74.8	75.3	76.5	78.6	78.9	78.7	78.3	129.2	
250	71.7	72.0	73.1	73.1	72.6	71.8	72.2	71.7	72.9	73.7	75.0	76.1	77.7	78.0	77.6	75.6	128.6	
315	74.9	74.2	74.7	75.3	74.4	73.0	73.0	72.5	73.3	74.2	75.5	76.3	77.3	77.5	77.1	74.9	129.0	
400	75.1	74.9	75.5	75.9	75.1	73.5	73.9	73.9	74.3	75.9	77.0	78.3	78.9	78.3	77.5	74.8	130.2	
500	75.8	75.4	75.0	76.9	75.9	74.0	74.3	73.9	75.1	76.6	77.7	78.5	77.9	76.0	73.7	73.0	130.3	
630	77.4	77.0	76.7	77.9	76.8	75.2	74.5	73.9	74.8	76.6	77.6	77.4	77.7	77.1	75.2	72.5	130.4	
800	81.2	80.4	79.0	80.0	78.9	76.6	74.9	74.1	73.9	75.1	76.4	76.1	76.8	75.4	74.2	71.8	130.8	
1000	87.6	89.4	86.6	89.6	91.3	88.7	84.7	82.9	78.2	79.4	77.9	78.7	79.7	79.3	76.9	75.9	139.6	
1250	87.0	87.5	86.6	87.2	88.3	86.2	82.3	80.0	76.4	77.1	76.4	77.1	77.9	77.0	75.5	73.8	137.3	
1600	85.5	86.8	84.3	85.1	84.1	82.3	78.8	75.6	75.0	75.6	75.8	76.5	78.6	75.0	73.6	72.2	134.8	
2000	94.7	97.6	93.1	94.2	91.1	88.3	84.5	79.8	77.9	77.4	77.1	77.1	80.3	83.2	79.6	77.1	76.6	142.8
2500	89.4	88.1	89.2	90.2	89.0	86.0	80.8	77.0	74.8	74.7	76.0	78.5	79.5	77.8	75.2	73.1	138.7	
3150	90.8	93.6	96.8	94.7	95.7	92.6	85.7	81.4	78.0	77.4	78.4	79.1	81.6	78.7	77.1	77.0	144.6	
4000	88.6	88.9	87.5	88.5	87.1	85.2	81.9	76.9	75.9	77.9	77.3	79.7	80.7	77.1	74.6	72.5	138.3	
5000	88.4	90.2	89.0	91.6	89.2	85.9	81.4	76.0	75.3	76.4	78.0	79.9	80.7	76.2	74.1	72.4	139.9	
6300	88.2	88.8	88.2	89.5	88.4	86.9	82.2	76.7	74.4	75.4	77.5	79.4	81.4	78.8	74.6	73.9	139.6	
8000	86.5	87.2	86.2	87.6	85.2	83.0	80.7	75.1	72.7	74.6	75.0	77.8	78.6	76.9	73.2	72.7	137.8	
10000	85.1	86.0	84.7	85.4	83.9	81.1	79.2	74.8	71.7	73.7	73.7	77.2	76.1	74.6	69.6	68.2	137.0	
CASPL	99.9	101.6	100.8	101.1	100.4	97.8	93.4	90.2	88.4	89.4	90.1	91.5	93.3	92.1	91.7	91.9	150.9	
PNL	113.2	115.0	115.7	115.1	115.0	112.3	107.4	103.7	101.6	102.2	102.8	104.3	106.0	103.9	102.2	101.5		
PNLT	115.6	116.3	116.5	117.3	117.5	114.8	109.4	105.7	102.6	103.3	103.2	105.3	107.3	104.9	103.2	102.9		
DBA	100.5	102.4	101.6	101.7	101.1	98.4	93.7	90.0	87.6	88.3	88.7	90.3	91.8	89.4	87.2	86.0		

APNLW= 109.4 IPNLW= 124.9 LAPNLW= 98.1 LIPNLW= 105.6 TPNLW= 123.4

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
CSAE110G/P 1 2030AO	06-14-83	PEBBLES 4D	130. FT ARC	2030	12207	SAE77	28.67	FULL SPHERE

GP MICS/HNL PERFORMANCE INLET, TRTD EXH/60B FRFLD CORR/BG3462

ORIGINAL PAGE IS  
OF POOR QUALITY

### Appendix 9.1.33

16214ES/FSDR/RPMAVO

#### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150 O FT. ARC

#### IDENTIFICATION

AVERAGE - C5AE1100/P I 2180AO

INPUT - C5AE1100/P I X03510 C5AE110G/P I X05510

#### ANGLE MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PHL	
50	66.1	67.6	67.6	69.7	69.2	70.2	71.3	72.1	72.9	74.6	76.2	77.7	80.3	82.2	85.1	87.4	132.1	
63	70.7	70.4	69.7	75.7	70.8	71.4	71.1	72.3	73.1	75.2	76.3	77.7	83.1	82.5	84.0	87.2	132.5	
80	71.4	70.2	70.1	69.6	70.6	70.3	71.4	72.4	73.6	74.2	75.0	76.5	78.4	80.5	82.4	84.4	131.6	
100	70.6	69.5	70.5	71.2	71.3	71.6	72.5	73.3	74.2	75.6	77.5	79.6	81.3	82.9	83.0	83.6	132.1	
125	71.3	72.6	72.6	72.9	72.0	72.4	73.9	74.4	74.8	76.3	77.5	79.6	81.3	82.7	83.9	83.2	132.1	
160	71.9	73.0	72.9	72.9	72.2	72.4	72.5	73.9	74.5	75.9	77.3	78.9	81.0	82.1	82.6	81.3	131.4	
200	73.7	74.0	74.0	74.6	73.9	73.4	73.9	74.1	75.4	75.1	76.6	77.6	81.6	81.4	81.9	80.6	131.6	
250	73.1	73.6	74.3	74.3	75.1	74.1	73.7	73.4	74.4	75.2	76.1	77.2	78.4	80.0	80.6	80.0	130.6	
315	76.3	75.3	75.3	76.0	76.7	75.1	74.4	74.7	74.3	75.7	76.4	77.7	78.4	80.7	80.7	80.0	131.1	
400	76.6	76.9	76.9	76.7	77.2	76.2	74.8	75.1	75.3	76.3	78.0	79.1	79.6	80.9	79.9	79.4	131.6	
500	77.0	76.6	76.7	76.3	77.1	75.5	75.6	75.4	75.5	76.1	78.6	79.9	80.2	80.2	79.4	78.1	131.6	
630	78.5	78.2	77.4	80.2	77.8	76.6	76.0	76.2	76.6	76.6	78.6	79.6	79.6	79.2	77.7	74.7	132.1	
800	82.1	81.1	79.9	80.5	79.9	78.0	76.6	75.6	75.4	76.5	78.0	78.3	78.6	77.6	76.5	73.9	132.3	
1000	86.1	86.4	85.5	85.2	87.2	86.2	86.6	86.2	86.6	86.6	87.4	87.4	87.6	87.6	87.1	74.9	136.7	
1250	92.2	94.3	93.5	92.6	92.6	95.6	95.0	91.0	97.3	85.5	84.1	82.5	83.5	83.9	83.9	80.7	81.5	144.6
1600	88.1	86.2	85.5	85.6	85.5	83.7	80.5	77.0	75.9	77.7	77.3	79.3	77.4	75.5	75.5	75.6	131.6	
2000	94.6	96.0	97.9	92.5	92.0	85.5	82.2	76.6	77.5	77.7	79.2	80.1	80.5	79.4	78.1	75.5	131.6	
2500	92.3	94.0	93.6	95.3	95.3	91.4	89.2	81.3	87.7	78.5	79.6	83.8	83.0	81.3	79.0	77.3	144.1	
3180	93.8	98.3	97.1	101.5	99.7	95.9	89.2	85.2	81.4	80.2	81.6	81.6	83.4	81.5	82.7	80.8	146.7	
4000	88.5	90.2	92.6	92.9	91.9	90.6	89.3	81.5	81.5	81.2	82.3	85.7	81.4	78.4	78.3	74.3	142.6	
5000	89.3	89.5	90.5	90.6	90.6	89.3	86.4	80.0	78.1	79.0	80.7	81.5	82.1	78.2	76.6	74.6	141.3	
6300	88.6	89.4	89.9	90.6	89.9	87.6	87.6	83.7	83.7	87.6	87.6	87.6	87.6	87.6	87.6	87.6	139.3	
8000	87.0	86.2	86.0	86.9	87.2	85.1	82.3	76.6	74.0	75.2	77.2	78.1	80.0	80.3	80.3	80.3	139.3	
10000	85.0	86.9	86.2	86.2	85.9	83.7	80.6	75.6	72.5	74.2	74.7	77.8	77.9	76.1	71.5	70.0	138.4	
DASPL	101.1	104.1	103.4	104.4	103.9	101.1	96.6	92.9	91.4	91.6	92.5	93.9	95.3	94.6	94.6	94.5	153.6	
PNL	114.6	118.3	117.1	119.6	118.4	115.3	110.4	106.7	104.6	104.6	105.4	106.9	108.7	106.4	106.4	104.5		
PNLT	116.7	121.0	119.6	122.4	119.7	114.3	109.7	107.2	106.6	107.0	108.5	110.3	105.4	107.6	106.6			
DBA	101.9	105.0	104.3	105.4	104.6	101.6	97.2	92.9	90.9	90.9	91.4	92.6	93.9	91.9	90.3	88.9		
APNLW	112.1	127.8	127.8	LAPNLW	102.3	LIPNLW	110.3	TIPNLW	126.5									

TEST DATE LOCATION ACOUSTIC RANGE REFERENCE RPM ARIITH AVG FNUK IALPHA PABE  
C5AE110G/P I 2180AO 06-14-63 PEBBLE'S 4D 150 FT ARC 2160 14244 SAE77 26.67 FULL SPHERE  
GP MICS/MLI PERFORMANCE INLET, RTD EXH/60B FRFLN CORR/B61462

Appendix 9.1.34

10214ES/FSDR/RPMAVG

AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H., DAY, SAE 150.0 FT. ARC

IDENTIFICATION

AVERAGE - CSAE1106/P 1 2320AO

INPUT - CSAE1106/P 1 X03520 CSAE1106/P 1 X05520

ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL	
50	70.7	70.3	70.2	72.5	72.2	73.6	74.5	75.4	76.6	78.7	80.4	82.7	84.9	86.0	90.2	134.6		
63	72.1	71.6	71.5	76.4	72.9	73.2	74.9	75.3	77.0	79.5	80.2	84.6	84.9	86.7	89.0	134.5		
80	73.1	72.0	72.0	73.1	74.1	74.0	74.5	75.0	75.9	76.3	77.5	79.1	80.5	82.9	84.7	87.1	134.1	
100	73.2	72.0	73.0	73.1	74.1	74.0	74.5	75.0	75.9	76.3	77.5	79.1	81.4	83.7	85.7	86.6	134.3	
125	74.1	74.2	76.3	75.7	75.1	75.5	76.5	77.0	77.4	78.4	79.6	82.0	83.7	85.1	86.6	85.4	134.6	
160	75.4	75.7	75.9	75.6	75.7	75.7	76.3	76.7	76.6	78.2	79.6	81.4	83.5	85.0	86.5	84.3	134.1	
200	76.6	77.1	77.0	77.0	77.1	76.5	77.3	78.0	78.0	78.9	80.1	81.9	84.5	84.5	84.4	83.6	134.5	
250	76.0	76.3	77.0	77.6	76.7	77.0	76.7	77.1	78.1	78.4	79.9	81.0	82.6	83.8	83.6	81.5	133.7	
315	77.2	77.4	77.6	77.4	78.0	77.6	76.8	76.7	76.7	77.4	78.0	79.6	80.6	82.4	82.2	82.1	80.3	133.3
400	78.0	77.6	77.6	78.5	78.0	77.3	77.0	77.0	77.0	77.0	77.0	78.1	80.2	82.3	82.4	82.2	80.7	133.7
500	78.1	77.7	77.8	79.0	78.3	77.1	76.7	77.0	77.0	78.3	79.5	80.7	81.1	82.5	81.7	80.6	80.6	133.5
630	79.5	79.2	79.0	79.0	79.2	79.0	78.5	78.4	78.4	79.1	80.1	80.5	81.3	81.9	80.9	79.4	76.9	134.0
800	82.4	81.6	80.4	81.2	80.9	79.2	77.4	76.6	77.1	78.9	79.5	80.0	80.6	79.7	78.6	76.2	133.6	
1000	85.3	84.4	83.8	84.4	85.2	83.4	80.0	77.9	77.9	78.5	79.4	80.3	79.1	79.1	77.6	75.3	135.5	
1250	91.9	93.5	92.3	96.0	98.7	96.0	91.5	96.6	96.6	97.3	98.7	98.3	86.3	85.4	85.2	83.7	82.8	146.3
1600	86.5	87.5	86.2	87.0	87.3	85.7	82.2	86.6	86.6	87.7	87.7	87.7	80.5	80.2	79.3	78.5	76.6	137.4
2000	93.6	96.6	93.1	94.9	91.5	95.3	92.7	95.1	95.1	95.2	95.2	95.2	80.8	81.5	79.6	77.6	75.5	143.0
2500	101.5	98.9	95.2	96.8	94.9	95.3	93.3	93.3	93.7	91.7	90.3	81.6	84.4	81.8	82.0	80.5	78.3	146.2
3150	93.3	96.5	93.4	95.7	96.7	95.4	90.6	93.1	90.6	90.7	90.3	80.3	82.0	83.9	83.4	76.9	80.7	145.8
4000	91.3	93.4	92.3	94.7	94.3	93.1	90.6	92.6	90.6	91.6	92.0	93.0	84.6	81.7	78.7	76.9	144.3	
5000	92.3	92.5	91.3	91.9	94.9	94.9	90.7	99.0	99.1	95.6	91.5	83.4	84.3	80.9	78.8	77.2	144.4	
6300	90.5	92.4	90.5	90.6	90.4	90.3	97.2	94.0	98.2	94.0	97.4	79.5	84.4	85.6	81.4	76.4	77.2	142.5
8000	89.2	90.5	89.6	89.6	89.6	89.6	90.4	90.4	90.4	90.4	90.4	90.4	81.3	82.5	80.5	77.2	76.3	141.3
10000	87.4	86.6	87.6	87.4	87.7	85.2	83.0	76.9	74.5	75.9	77.3	80.1	80.7	78.4	73.8	71.6	140.2	
104.3	105.0	102.2	104.1	104.2	102.2	98.2	94.2	93.0	93.5	94.6	95.7	97.0	96.7	96.9	96.8	154.8		
PNL 119.0	118.4	116.7	117.3	117.5	115.9	115.2	106.0	105.3	106.4	107.1	108.2	109.4	108.3	106.1	105.6			
PNL 122.5	120.9	118.1	120.6	121.7	119.7	115.5	110.3	108.3	109.3	110.1	111.1	110.3	108.1	106.1				
DBA 105.3	105.8	102.8	104.8	104.9	102.9	99.6	94.0	92.3	92.4	93.4	94.3	95.1	93.4	91.5	90.3			
GP MICS/ML PERFORMANCE INLET, TRTD EXH/6DB FRFD CORR #63462																		
APNLW= 113.1	TPNLW= 126.5	LAPNLW= 104.2	LIFNLW= 111.7	TPNLW= 125.1														

IDENTIFICATION TEST DATE LOCATION ACOUSTIC RANGE REFERENCE RPM ARITH AVG FNUK IALPHA PAMB PWL AREA  
CSAE1106/P 1 06-14-63 PETRIES 10 150. FT ARC 2320 16555. 16555. SAE77 28.67 FULL SPHERE

GP MICS/ML PERFORMANCE INLET, TRTD EXH/6DB FRFD CORR #63462

## Appendix 9.1.35

16214ES/FSDR/RPHAVG

11/14/63 9.065 PAGE 1

## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

## IDENTIFICATION

AVERAGE - C5AE110G/P 1 2500AO

INPUT - C5AE110G/P 1 X03530 C5AE110G/P 1 X05530

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	71.1	70.7	70.9	73.3	73.3	74.0	78.0	76.2	77.1	78.9	81.0	82.6	85.2	87.5	90.8	93.5	137.4
63	73.1	72.3	71.9	75.9	74.3	74.8	79.7	76.4	77.1	79.2	80.7	81.9	86.5	87.2	89.9	92.0	137.0
80	74.3	73.1	73.4	74.0	74.8	74.9	76.0	77.4	78.1	79.4	81.3	83.0	85.7	87.7	89.9	90.4	136.8
100	74.3	73.3	74.7	75.5	75.2	75.8	76.4	77.5	78.6	79.9	81.7	83.5	86.1	88.2	89.9	88.8	136.8
125	75.4	75.5	76.4	76.4	76.3	76.8	77.6	78.3	78.9	80.6	82.2	84.2	86.2	87.8	89.6	88.1	136.9
160	75.7	76.1	76.5	76.9	76.5	76.9	77.1	79.1	80.4	82.0	83.7	86.0	87.5	89.3	87.1	136.5	
200	77.6	77.9	77.4	77.6	77.2	77.6	79.2	80.2	81.9	82.5	84.1	86.2	87.3	87.6	85.7	136.6	
250	76.0	77.0	77.9	78.2	77.9	77.5	77.9	78.3	79.7	80.7	82.0	83.3	85.4	86.3	86.3	84.2	135.6
315	78.3	77.9	79.2	79.6	78.6	77.7	78.1	78.5	79.1	80.4	82.1	83.2	85.0	85.3	85.3	82.9	135.5
400	79.0	79.6	79.8	80.3	79.2	78.6	78.7	78.9	80.1	81.4	83.0	83.7	85.2	84.4	81.6	135.9	
500	79.4	79.2	79.4	80.3	80.0	79.2	78.9	79.0	80.1	81.6	82.3	83.8	84.7	84.3	83.4	80.6	135.6
630	81.5	80.8	80.1	81.7	81.2	80.2	79.9	79.2	80.6	82.5	83.3	83.2	84.5	83.4	82.4	79.7	136.0
800	83.1	82.4	81.5	82.2	82.0	80.7	79.8	78.8	79.4	80.9	81.5	82.4	83.5	82.2	81.5	78.5	135.5
1000	85.4	84.7	84.4	84.5	84.5	83.5	81.2	79.4	79.3	80.7	81.2	81.7	82.2	81.5	80.2	77.6	136.3
1250	99.5	94.8	100.1	99.8	97.6	97.8	94.2	89.5	88.8	87.3	88.2	86.0	87.7	85.4	85.9	83.5	146.5
1600	92.6	90.5	93.7	93.1	92.2	91.7	88.7	84.3	83.3	83.1	83.1	82.8	83.8	82.5	81.7	79.5	142.8
2000	88.6	90.1	87.8	88.0	87.4	85.9	82.7	79.7	79.0	79.9	80.6	81.6	82.1	80.1	78.4	76.1	138.6
2500	99.3	102.6	94.1	94.5	94.9	95.2	92.1	86.3	84.4	82.1	83.3	84.9	87.2	83.0	81.6	80.0	147.1
3150	92.9	95.7	92.5	93.5	92.2	92.6	90.9	87.7	82.6	80.8	80.7	82.0	83.4	85.3	81.2	79.4	143.4
4000	94.1	99.4	97.2	96.7	98.0	95.0	93.8	85.8	84.1	83.7	84.6	86.6	88.1	82.7	81.3	79.7	147.8
5000	93.0	94.1	93.2	93.9	94.2	93.4	90.7	84.8	83.7	85.1	86.0	88.2	85.9	82.2	80.6	79.3	145.2
6300	90.8	92.5	92.3	92.6	91.5	90.3	88.4	82.2	80.6	81.9	84.5	86.1	86.3	81.8	79.5	78.1	143.6
8000	89.5	91.2	90.7	91.0	90.5	88.1	86.4	80.6	78.0	79.5	82.2	83.9	85.8	83.1	79.4	78.2	142.6
10000	88.5	89.7	89.0	88.9	88.5	86.5	84.0	78.7	76.2	77.7	79.1	81.6	81.7	79.4	74.9	73.2	141.3
GASPL	104.8	106.5	104.7	104.7	104.2	103.2	100.7	95.8	95.2	95.6	96.8	97.9	99.3	98.8	99.7	99.5	155.6
PNL	118.3	120.7	117.9	117.8	118.2	116.3	114.6	109.0	107.9	108.3	109.4	111.0	112.1	109.2	108.3	106.7	
PNLT	121.0	124.0	121.6	121.5	121.2	119.7	117.7	111.5	110.4	110.1	111.4	112.2	113.6	110.3	109.9	108.3	
DBA	105.6	107.4	105.3	105.2	104.8	103.8	101.2	95.7	94.6	94.5	95.5	96.4	97.3	94.6	97.6	91.5	

APNLW= 115.1 IPNLW= 127.6 LAPNLW= 106.0 LIPNLW= 114.6 TPNLW= 126.4

TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
06-14-63	PEERLES 4D	150. FT ARC	2500	19213	SAE77	28.67	FULL SPHERE

GP MICS/HNL PERFORMANCE INLET, TRTD EXH/GDB FRFLD CORR/B63462

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## Appendix 9.1.36

16214E3/FSDR/RPMAVG

11/14/83 9.065 PAGE 1

### AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

#### IDENTIFICATION

AVERAGE - C5AE110G/P 1 2800AO

INPUT - C5AE110G/P 1 X03540 C5AE110G/P 1 X05540

#### ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
60	74.6	74.4	75.0	77.4	77.6	78.0	78.9	80.1	81.7	83.2	85.0	86.8	89.4	92.4	96.4	99.7	142.6
63	76.4	76.0	76.0	79.0	78.3	78.4	79.6	80.7	81.9	83.4	84.9	86.9	90.3	92.4	95.1	97.6	141.9
60	78.1	76.7	77.1	77.7	78.5	78.1	79.9	81.3	82.5	83.6	85.6	87.9	89.9	92.6	95.4	96.4	141.6
100	79.1	78.0	79.2	79.1	79.9	79.8	81.0	82.1	82.7	84.3	86.2	88.4	90.8	92.8	95.3	94.4	141.6
125	79.8	79.0	79.7	80.5	80.4	80.3	81.3	82.4	83.7	84.6	86.7	88.9	90.8	93.0	95.0	93.3	141.8
160	78.8	79.6	80.0	80.7	80.5	80.7	81.2	82.4	83.4	84.9	86.4	88.3	90.7	92.4	93.6	92.3	141.2
200	79.6	80.2	81.4	81.4	81.6	81.3	81.6	83.4	84.3	85.6	86.9	89.0	90.9	92.3	92.7	91.5	141.2
250	78.6	80.3	81.4	81.5	81.3	81.5	82.0	82.6	83.9	84.9	86.8	88.4	90.4	91.4	91.9	89.5	140.6
315	80.1	80.4	81.6	82.2	82.1	81.4	82.4	82.7	83.8	85.0	86.5	88.0	89.9	90.5	90.5	87.8	140.1
400	80.5	81.2	81.5	82.7	82.7	81.8	81.9	83.0	84.3	85.5	87.1	88.5	89.7	90.9	89.5	86.5	140.1
500	82.0	81.3	81.7	82.8	82.7	82.2	82.5	83.0	84.5	85.9	86.8	88.2	89.4	89.1	88.7	85.4	139.9
630	83.2	82.7	82.0	83.3	82.9	83.2	82.6	83.4	85.4	86.6	87.8	88.0	88.9	88.3	87.3	84.2	140.0
800	83.8	83.6	82.5	83.5	83.2	82.6	82.1	82.7	83.6	85.1	86.1	87.2	87.8	87.2	86.2	83.1	139.0
1000	85.9	85.7	85.3	85.3	85.5	84.4	82.9	82.5	83.7	84.9	85.6	86.6	86.8	86.4	85.2	81.9	139.2
1250	89.8	91.1	91.3	91.3	93.0	92.1	89.4	85.9	85.2	85.4	86.2	86.9	87.0	86.2	85.4	82.3	143.1
1600	99.2	101.9	101.4	100.9	104.4	103.1	99.7	95.2	92.3	92.1	92.3	91.2	92.6	89.9	88.9	86.0	152.8
2000	87.9	88.5	88.4	88.8	88.9	87.0	85.3	82.6	82.0	84.1	84.5	85.6	85.4	84.5	82.6	80.2	140.3
2500	91.1	91.2	91.8	91.6	90.2	88.6	86.7	83.6	83.0	83.8	84.7	86.9	86.6	84.2	82.9	80.0	142.1
3150	97.4	96.4	99.1	97.4	97.2	95.8	93.8	89.5	86.7	85.3	87.3	88.4	87.3	85.5	83.7	82.0	148.0
4000	92.6	94.6	95.6	95.3	94.1	92.9	90.6	86.1	85.4	85.7	87.3	89.0	92.1	85.6	83.1	81.7	146.0
5000	93.3	95.2	95.9	96.0	95.1	94.6	92.1	87.9	87.1	87.9	89.7	90.2	90.6	85.5	84.2	82.1	147.1
6300	92.3	93.2	92.9	94.2	92.6	92.1	90.1	85.3	83.7	85.2	88.2	89.8	88.4	84.6	82.3	80.5	145.4
8000	89.8	91.0	91.1	92.1	90.7	89.4	87.7	82.8	81.0	82.4	85.6	87.3	88.4	84.8	81.3	80.0	143.9
10000	88.0	89.1	88.9	88.6	89.1	87.3	85.7	80.1	78.8	80.1	82.3	84.5	84.6	81.6	77.6	75.5	142.2

DASPL 104.1 105.5 105.9 105.5 106.6 105.7 103.0 99.6 98.7 99.5 100.8 102.0 103.3 103.5 104.8 105.1 158.1

PNL 117.9 118.2 119.4 118.6 119.6 118.5 116.1 112.6 111.3 111.8 113.3 114.3 115.9 112.9 112.0 110.5

PNLT 121.4 122.2 123.3 122.4 125.1 124.1 121.1 116.2 114.0 114.2 115.6 115.9 116.0 114.4 113.6 112.8

DBA 104.7 106.1 106.6 106.2 107.6 106.4 103.5 99.4 97.8 98.2 99.4 100.1 100.9 98.5 97.5 95.4

APNLW= 118.4 IPNLW= 129.3 LAPNLW= 108.5 LIPNLW= 110.1 TPNLW= 127.9

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFERENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
C5AE110G/P 1	06-14-83	PEEBLTS 4D	150 FT ARC	2900.	25246.	SAE77	28.67	FULL SPHERE

GP MICS/HWL PERFORMANCE INLET,TRTD EXH/60B FRFLD CORR/#63462

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## Appendix 9.1.37

16214ES/FSDR/RPMAG

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## AVERAGE SOUND PRESSURE LEVELS

77.0 DEG. F., 70 PERCENT R.H. DAY, SAE 150.0 FT. ARC

## IDENTIFICATION

AVERAGE - CSAE110G/P 1 3100AO

INPUT - CSAE110G/P 1 X03550 CSAE110G/P 1 X05550

## ANGLES MEASURED FROM INLET, DEGREES

FREQ	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.	120.	130.	140.	150.	160.	PWL
50	77.8	77.7	78.6	80.4	81.0	81.9	82.4	83.5	84.9	86.6	88.5	90.7	93.1	96.7	101.9	106.4	148.2
63	80.1	79.1	79.1	81.2	81.9	82.3	83.0	84.3	85.4	86.8	88.5	90.7	94.1	96.8	100.3	103.5	146.7
80	82.5	81.2	81.4	81.8	81.6	82.1	83.6	84.9	86.0	87.3	89.5	91.8	94.5	97.5	100.5	102.1	146.7
100	83.8	82.1	82.9	83.5	83.4	83.8	84.5	85.3	86.6	88.1	90.1	92.5	95.1	98.2	100.6	99.6	146.6
125	83.0	82.8	83.6	84.2	83.8	84.0	85.0	86.0	87.2	88.8	90.8	92.9	95.2	98.0	100.4	98.4	146.5
160	82.8	83.6	83.6	84.6	83.5	84.1	84.8	86.0	87.1	88.8	90.5	92.6	95.0	97.9	99.3	97.7	146.0
200	82.3	84.1	85.1	85.0	85.1	84.8	85.3	87.0	87.6	89.6	91.0	92.9	95.5	97.4	98.3	97.0	145.9
250	82.4	83.9	85.0	85.3	85.3	85.5	85.8	86.6	87.8	89.1	90.9	92.9	94.9	96.7	97.0	94.9	145.2
315	82.7	83.4	84.3	86.0	86.2	85.6	86.1	87.2	88.3	89.4	91.0	92.5	94.4	95.9	95.7	93.1	144.8
400	82.9	84.3	84.8	85.9	86.0	85.9	86.2	87.5	88.2	89.8	91.4	92.8	94.6	95.1	94.9	91.8	144.7
500	83.7	84.2	86.4	86.9	86.8	86.2	86.8	87.3	88.6	90.1	90.9	92.7	93.8	94.3	93.5	90.5	144.3
630	84.7	87.2	88.3	89.1	88.2	88.4	88.9	87.9	89.1	90.4	91.0	92.8	93.5	93.4	92.8	89.5	144.6
800	85.8	85.4	85.6	86.6	87.9	87.5	86.5	87.2	88.0	89.5	90.4	91.9	92.4	92.4	91.2	87.9	143.6
1000	87.5	87.8	90.0	88.1	88.2	88.6	87.4	88.1	88.5	89.5	90.4	91.6	91.9	91.7	90.2	87.3	143.0
1250	90.8	91.2	91.0	90.4	91.2	90.6	88.8	87.7	88.1	89.1	89.7	91.3	91.4	90.5	89.0	86.3	144.2
1600	101.0	105.2	100.2	103.2	109.7	107.2	104.5	98.7	96.9	97.3	93.1	94.1	95.0	92.7	93.2	92.1	156.9
2000	93.8	95.7	93.6	95.5	99.0	97.7	95.6	91.1	90.0	90.2	89.6	91.1	90.7	89.9	88.3	85.8	148.3
2500	91.9	92.2	90.9	91.9	92.5	91.3	90.4	87.9	87.5	87.7	88.9	90.1	89.4	88.1	86.8	83.7	144.5
3150	98.2	100.0	99.0	98.2	98.5	96.8	94.8	91.3	89.5	90.9	91.0	91.7	90.7	89.0	87.6	85.2	149.5
4000	93.2	93.5	92.9	93.9	93.6	92.3	91.4	88.8	88.4	88.8	89.8	91.0	89.2	87.6	85.7	83.7	145.9
5000	94.0	94.6	94.0	95.2	94.9	93.7	92.0	90.1	90.0	90.8	91.9	93.9	91.0	87.9	86.8	84.6	147.5
6300	92.4	91.7	91.9	93.3	92.1	91.5	90.1	87.9	87.9	89.9	92.2	92.8	92.7	89.4	86.0	84.3	146.6
8000	89.4	90.6	90.2	90.9	90.3	88.5	87.4	84.6	84.6	86.5	89.9	91.0	89.3	87.5	83.8	82.1	144.7
10000	87.3	88.4	88.0	88.0	88.3	86.6	85.4	81.9	82.2	83.8	85.9	87.9	87.5	85.5	81.4	79.0	143.0
<b>GASPL 105.5 107.9 105.5 106.8 111.0 106.9 106.7 103.1 102.7 103.7 104.3 105.9 107.0 106.3 110.0 110.9 161.5</b>																	
<b>PNL 119.1 120.7 119.7 119.9 123.4 121.6 119.7 116.2 115.4 116.3 116.3 118.1 117.6 116.9 116.5 115.0</b>																	
<b>PNLT 122.0 124.6 122.3 123.3 126.2 125.9 123.8 119.3 118.0 118.8 117.6 119.0 116.9 117.5 118.0 117.0</b>																	
<b>DBA 108.1 108.7 106.0 107.4 111.8 109.6 107.3 102.9 101.9 102.7 102.5 103.8 103.7 102.8 102.0 99.8</b>																	
<b>APNLW= 121.1 IPNLW= 131.2 LAPNLW= 113.2 LIPNLW= 111.3 TPNLW= 129.6</b>																	

IDENTIFICATION	TEST DATE	LOCATION	ACOUSTIC RANGE	REFRRENCE RPM	ARITH AVG FNK	I ALPHA	PAMB	PWL AREA
CSEA110G/P 1 3100AO	06-14-83	PEEBLES 4D	150. FT ARC	3100	32355.	SAE77	28.67	FULL SPHERE

GP MICS/HML PERFORMANCE INLET, TRTD EXH/6DB FRFLD CORR/#63462

9.2

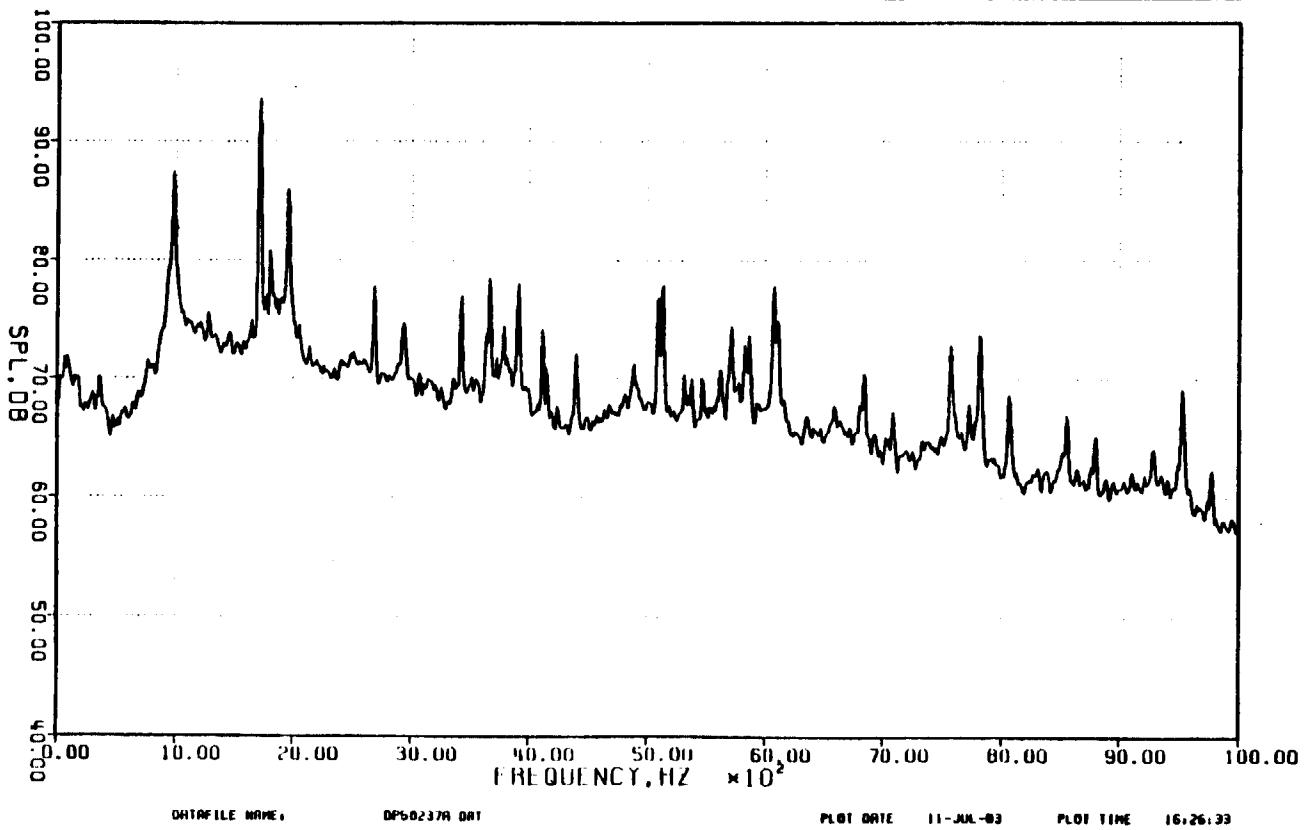
NARROWBANDS

## Appendix 9.2.1.a

## AVERAGED SPECTRUM

10 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D, DATE: 8-JUN-83  
 TAPE: E315, 30 IPS  
 FAN = 1631 RPM, CORE = 10910 RPM

BIN NO.	-7
POINT NO.	-237
DPF	-32
NO. OF BLADES	-32
TEMP DHT (DEG.F)	-65.0
TEMP MET (DEG.F)	-54.0
BLADE PRESS (LB/IN)	-25.50
BLADE SPAN (INCH)	-0.0400
SPANNING (INCH)	-25.000
A/R FILTER (INCH)	-10.000
RECORD TIME (SEC)	-0
AVERAGES	-100
BANDWIDTH (INCH)	-13
WINDWELL (INCH)	-0
MIN. VOLT	-0.0016
MAX. VOLT	-0.0010
SENSOR RATIO (DB)	-0.90
SENSOR CHL REF	-1.0
SENSOR DIST (FT)	-150.0



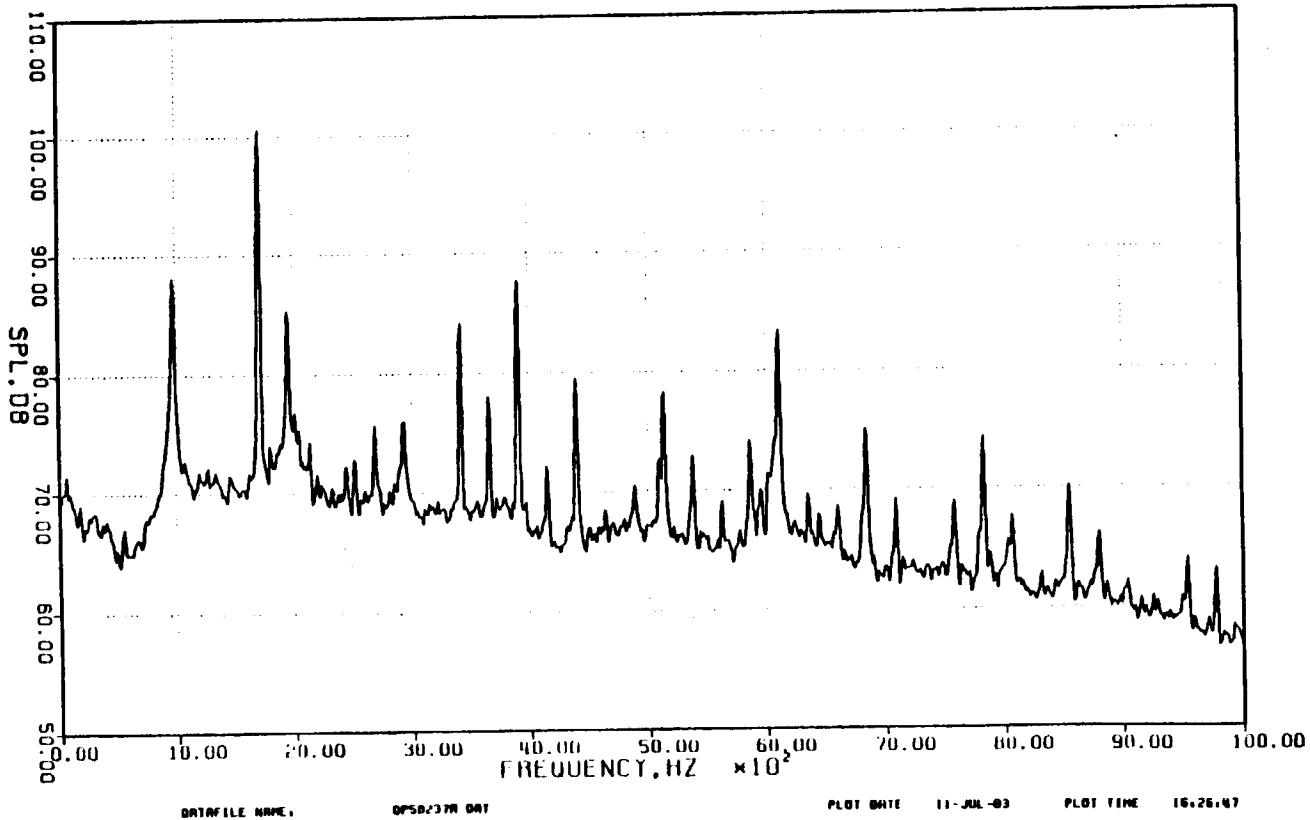
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Appendix 9.2.1.b

AVERAGED SPECTRUM

20 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D , DATE: 8-JUN-83  
TAPE: E315 . 30 IPS  
FAN = 1831 RPM, CORE = 10910 RPM

RUN NO.	-7
POINT NO.	-237
BPF	-871
NO. OF BLADES	-36
TEMP DAY (DEG F)	-85.8
TEMP NIGHT (DEG F)	-85.5
ATMOPH PRESS (IN HG)	-29.50
BLOCK SIZE	-214.0
SURF AREA (INCH <sup>2</sup> )	-25,600
Z/H (10 INCH) <sup>2</sup>	-10,000
RECDNG. TIME (SEC)	-0
RECNG. L/S	-1.00
TRANSDWTH (INCH)	-13
MINIOMWTH (INCH)	-1
SENSOR PS1/VIN1	-0.0016
SENSOR GRIN (UB)	-10
SENSOR VIN (B HRS)	-0.99
SENSOR LHI (WT)	-124
SENSOR DIST (FT)	-150.0



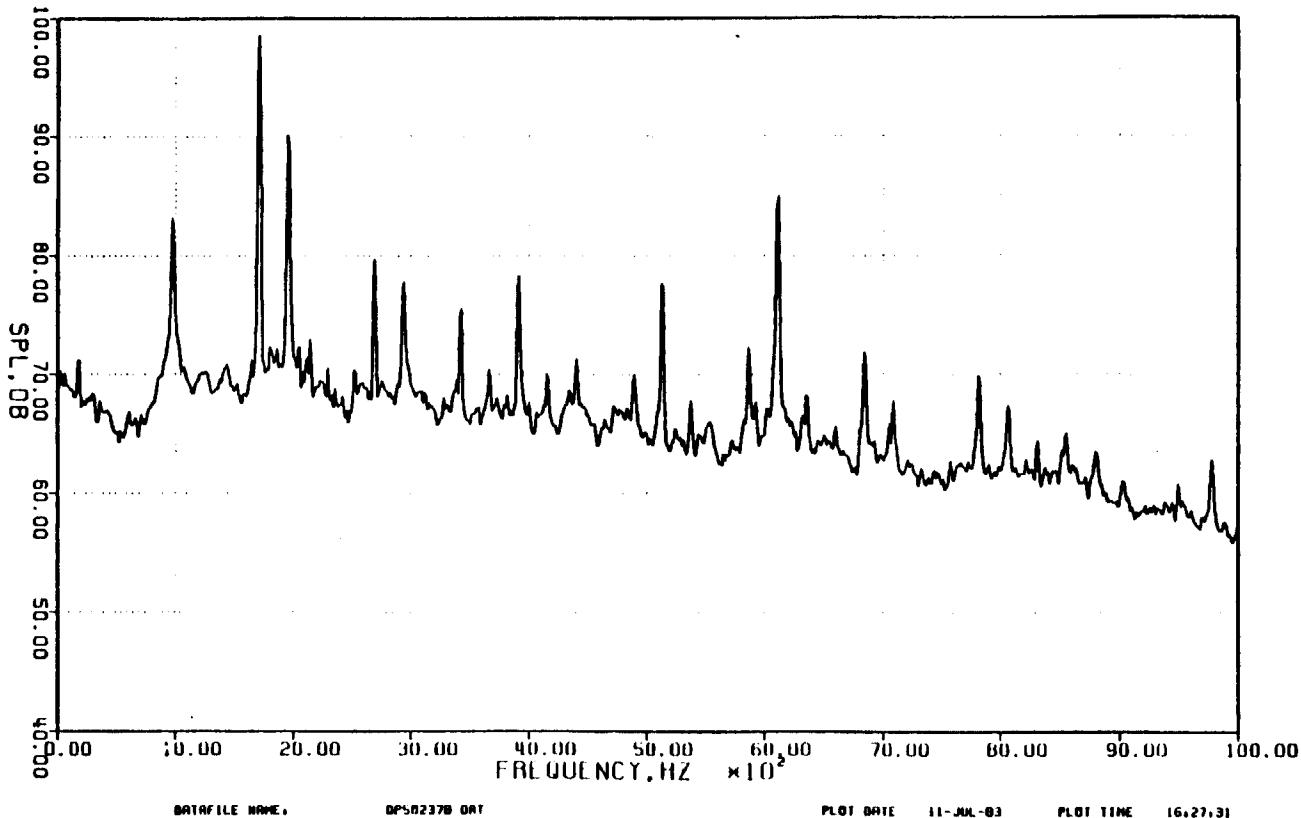
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## Appendix 9.2.1.c

## AVERAGED SPECTRUM

30 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 1831 RPM, CORE = 10910 RPM

RUN NO.	.7
POINT NO.	237
BPF	877
NO. OF BLADES	32
TOP BLADE IDEAL FREQ	25.0
TOP BLADE IDEAL AMP	58.5
BLADE PRESSURE (INCH)	29.50
BLADE SIZE	2048
SMPR RATE (INCH)	75.600
A/R FILTER (INCH)	10.000
INLET TIME (SEC)	0
INLET VEL (INCH)	0.00
INLET DIA (INCH)	13
WINDWALL (INCH)	1
SENSOR PSI/VOLT	0.0016
SENSOR CRIM (DB)	-10
SENSOR CRIM RMS	0.50
SENSOR CRIM REF	10
SENSOR DIST (FT)	150.0

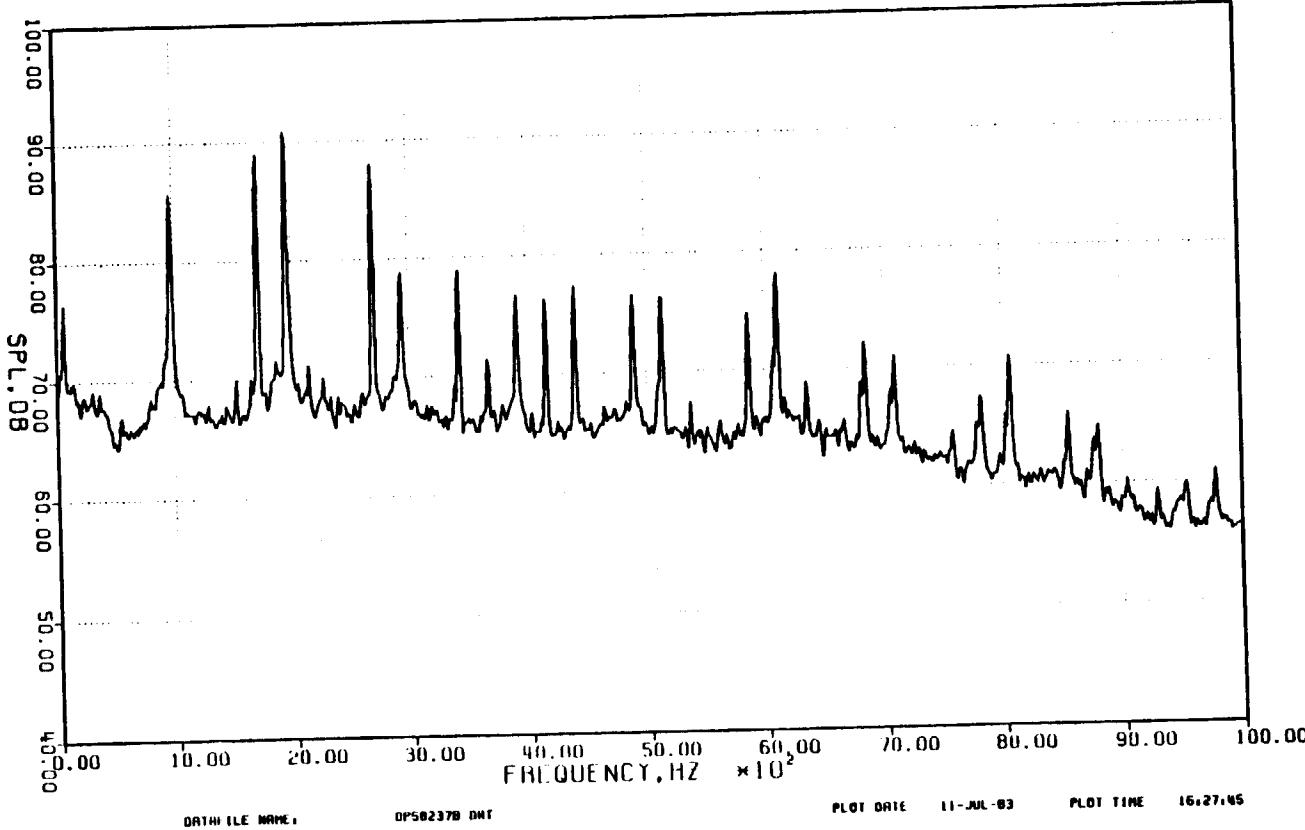


Appendix 9.2.1.d

AVERAGED SPECTRUM

40 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D , DATE: 8-JUN-83  
TAPE: E315 , 30 IPS  
FAN = 1031 RPM, CORE = 10910 RPM

RUN NO.	-7
POINT NO.	-337
BPF	-977
NO. OF BLADES	-26
TEST DATA (IEC F1)	-26.0
TEMP (AT IEC F1)	-24.5
BARO PRESS (INHG)	-29.50
BLOCK SIZE	-2048
SAMP RATE (HZ)	-25.600
A/D FILTER (HZ)	-10.000
REC'D TIME (SEC)	-
ROLLING AVE	-100
MINIM WIDTH (HZ)	-13
MINIM (1-HANN)	-1
SENOR PSI/VOLT	-0.0006
SENOR GAIN (DB)	-20
SENOR CALIB (DB)	-0.93
SENOR LNL REF	-12
SENOR DTS1 (FT)	-150.0



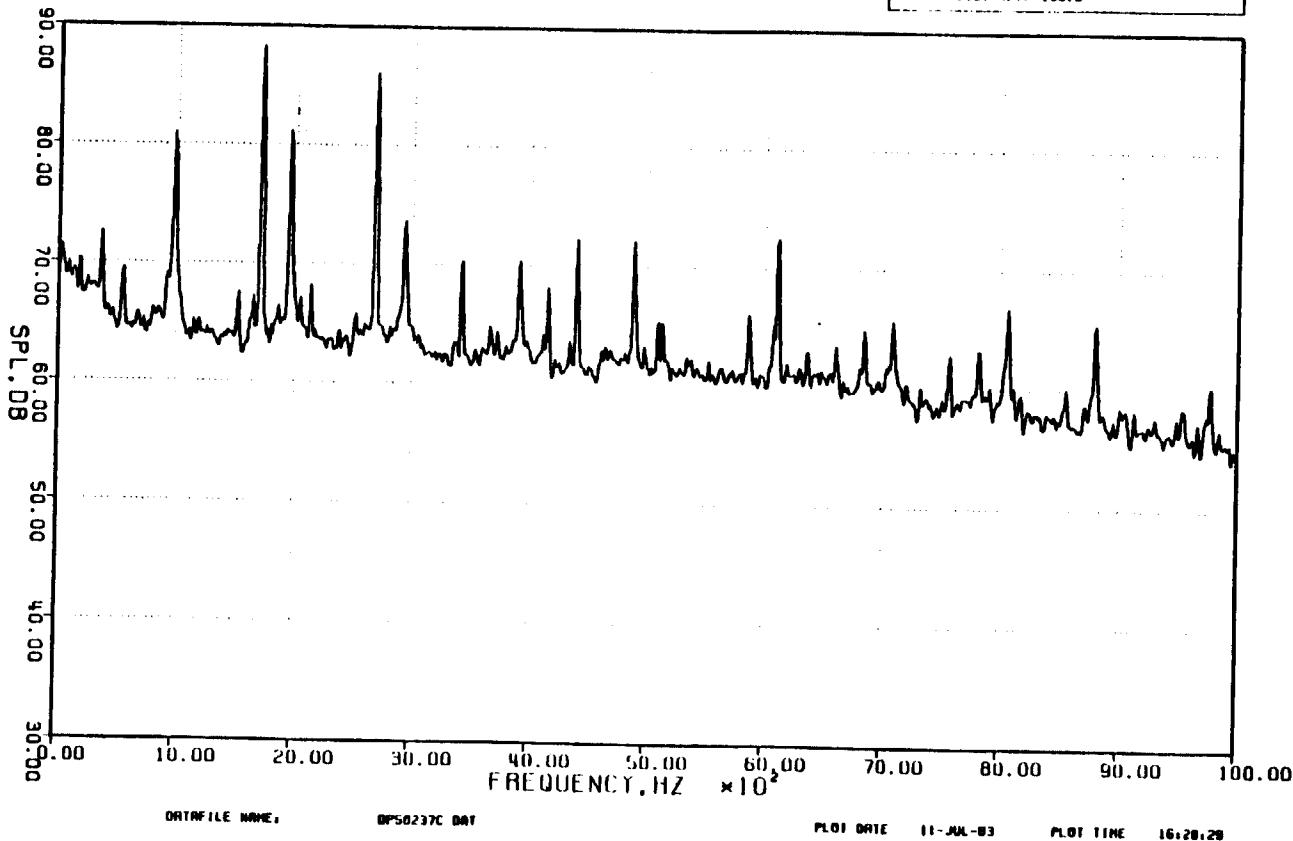
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## Appendix 9.2.1.e

## AVERAGED SPECTRUM

50 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 1631 RPM, CORE = 10910 RPM

RUN NO.	= 7
POINT NO.	= 237
DPF	= 22
NO. OF BLADES	= 22
TEMP DAY (DEG. F)	= 65.0
TEMP WET (DEG. F)	= 54.5
AMBI. PRESS (INHG)	= 28.58
BLOCK SIZE	= 2048
SAMPLE RATE (KHZ)	= 10.000
N/H F/L (FRAMES)	= 10.000
WAVEFORM TIME (SEC)	= 0
HYD HEADS	= 100
BONDWIDTH (HZ)	= 13
SEMINON (1-HMMI)	= 1
SEMINON GRAD/VOL T	= 0.0065
SEMINON GRAD (HMH)	= 20
SEMINON CRIM RMS	= 0.93
SEMINON CRIM REF	= 1%
SEMINON DIST (FT)	= 150.0



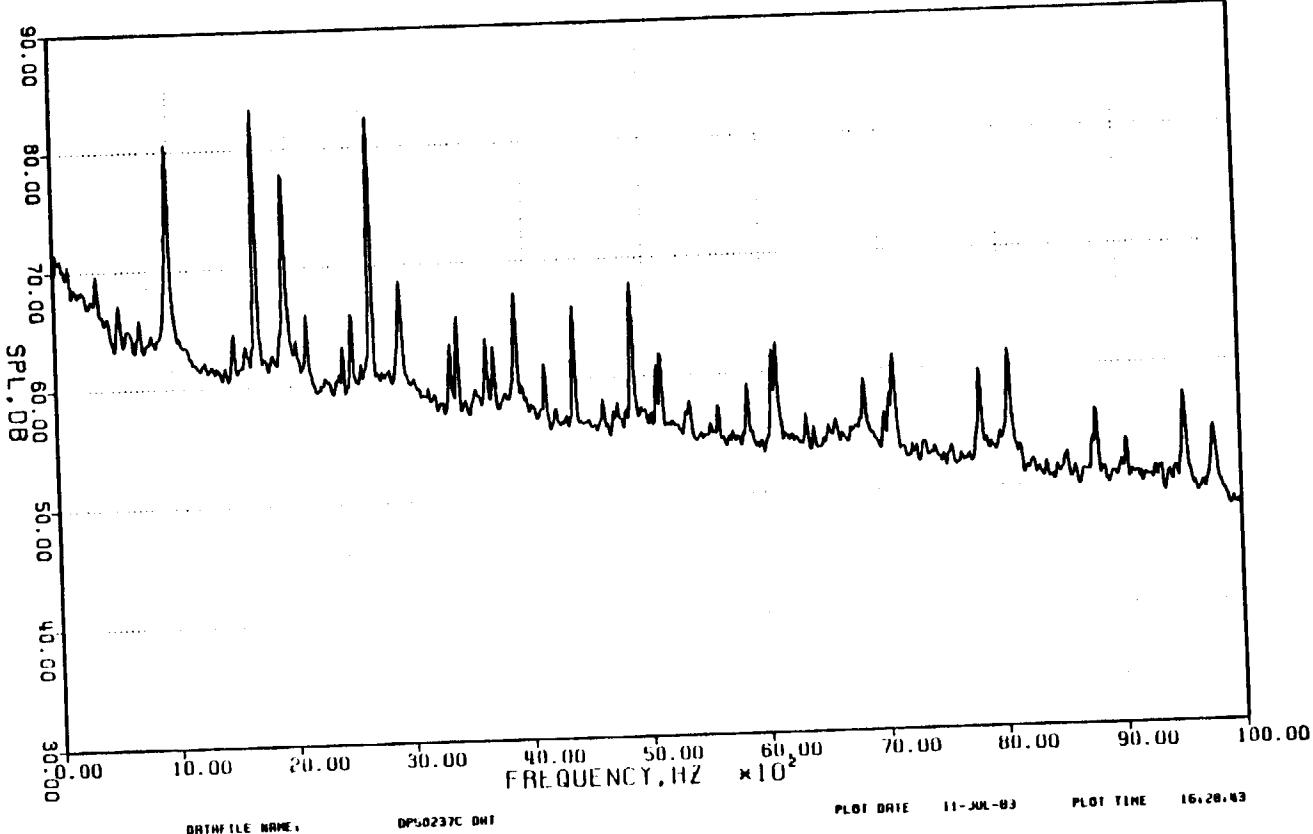
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Appendix 9.2.1.f

AVERAGED SPECTRUM

60 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 1831 RPM. CORE = 10910 RPM

RUN NO.	=7
PRTNT NO.	=237
SPR	=977
NO. OF BLAMES	=32
TEMP DRY (DG.F)	=65.0
TEMP WET (DG.F)	=59.5
BINAR PRESS (LNG)	=59.50
BLINN SITE	=104.0
SUMP RATE (IN/H)	=25.600
2/H FILTER TIME (SEC)	=10.000
REC'D TIME (SEC)	=0
AV Holes	=100
BINNIN TH (INT)	=13
BLINN TH (HMM)	=1
SUMP DR PST/VOL	=0.0005
SEN-DR CHIN (DB)	=20
SEN-DR (HLB RMS)	=0.91
SEN-DR (HLB REF)	=1%
SEN-DR DIST (FT)	=160.0



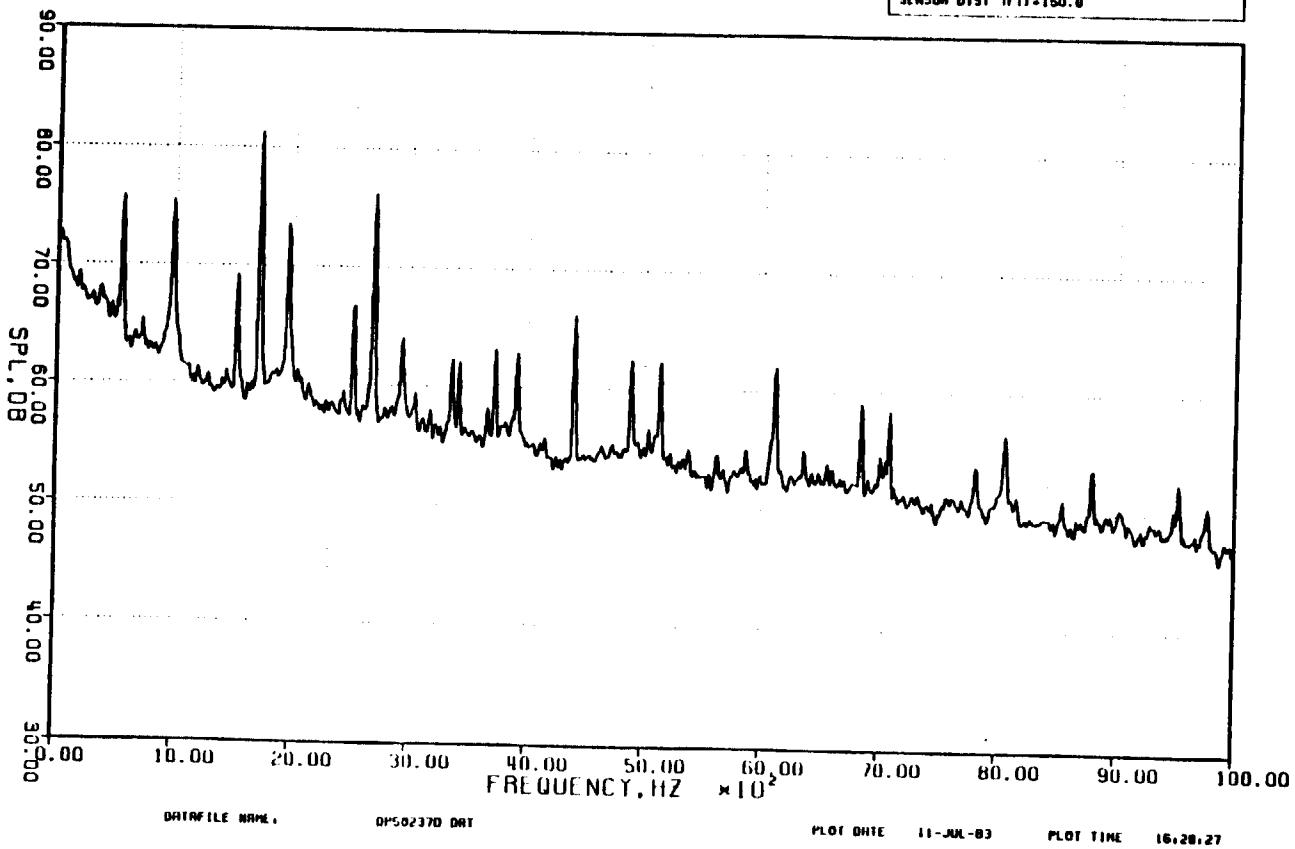
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## Appendix 9.2.1.g

## AVERAGED SPECTRUM

70 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 1831 RPM. CORE = 10910 RPM

RUN NO.	-7
POINT NO.	-277
WPF	-0.77
NO. OF BLADES	-32
TEMP DRY (DEG.F)	-68.0
TEMP WET (DEG.F)	-68.6
BLADE SPAN (INCH)	-28.58
BLADE SIZE (INCH)	-0.0000
SIMP. RATE (MHz)	-25.500
A/D (11) (MHz)	-10.000
INTERV TIME (SL1)	-0
AVL (HWLS)	-100
BLADE THICK (in)	-1.9
BLADE WT (lb/in)	-0.0000
SENSOR PSI/VOLT	-0.0006
SENSOR GAIN (dB)	-20
SENSE CH10 RMS	-0.92
SENSE CH11 RMS	-124
SENSOR DIST (ft)	-160.0



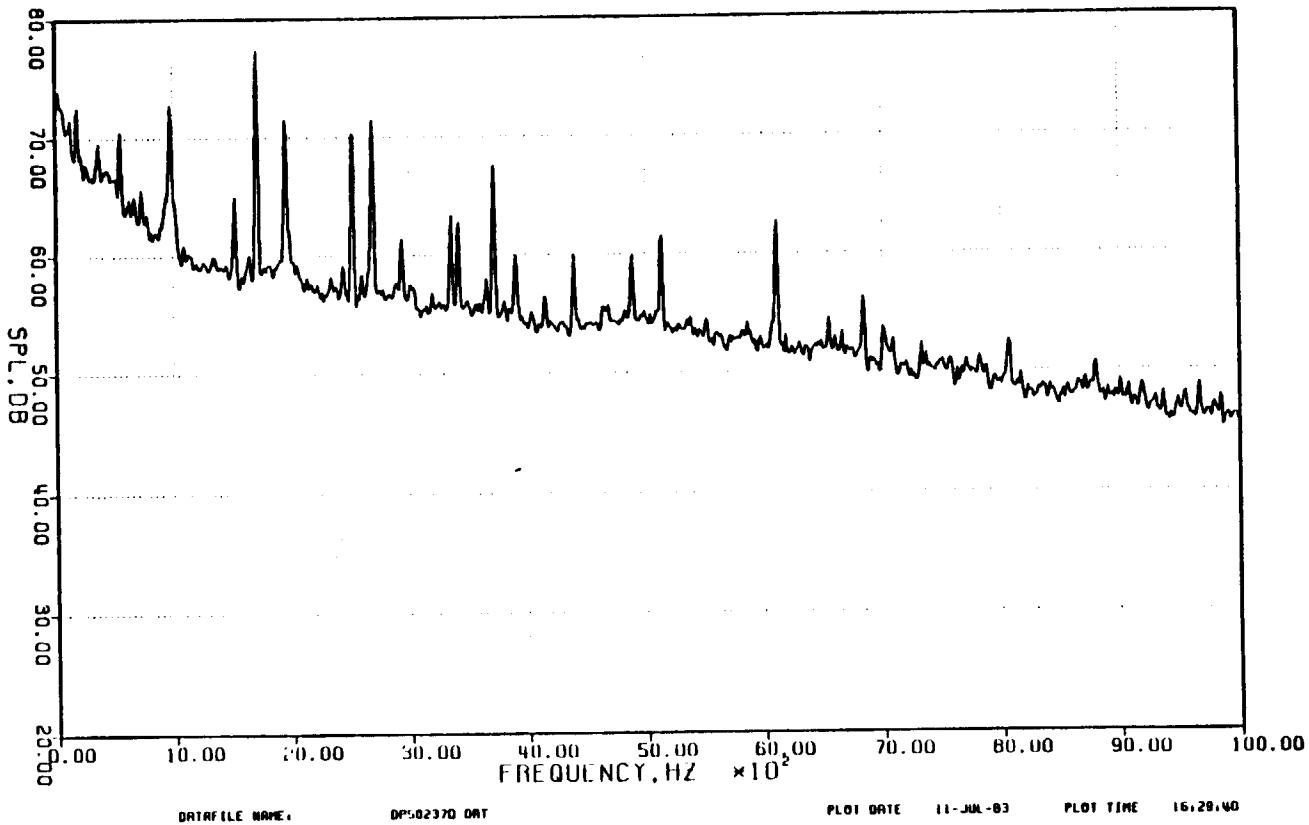
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### Appendix 9.2.1.h

#### AVERAGED SPECTRUM

80 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 1831 RPM, COHE = 10910 RPM

RUN NO.	-7
POINT NO.	-237
BPF	-82
NO. OF BLADES	-5
IMP DAT (DEG.F)	-65.0
IMP MET (DEG.F)	-54.5
BINH PRESS (TNG)	-29.50
BINH SIZE	-2048
SIMP. AMPL (HZ)	-25.000
H/F FILTER (HZ)	-10.000
BLADE SPACETIME (SEC)	-1.000
BLADES	-100
BINWIDTH (HZ)	-13
MINMAX (MANUAL)	-1
SIN:OR PS1/VOLT	-0.0005
SIN:OR PSD (DB)	-20
SENRSH CNT RMS	-91
SENRSH CNT REF	-124
SENSOR DIST (FT)	-150.0



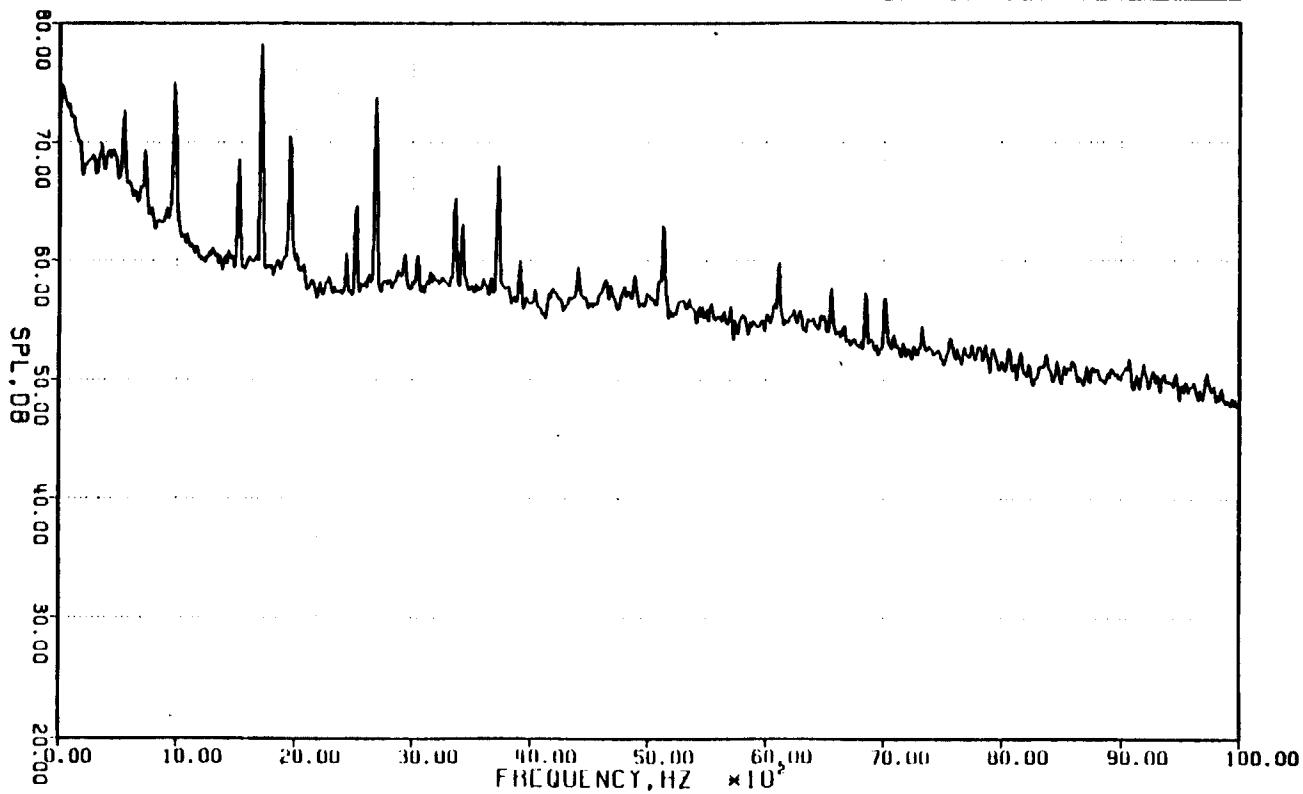
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## Appendix 9.2.1.1

## AVERAGED SPECTRUM

90 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 1831 RPM, CONE = 10910 RPM

RUN NO.	=7
POINT NO.	=237
BPF	=877
NO. OF BLADES	=32
TEMP AMT (DEG.F)	=85.0
TEMP AMT (DEG.C)	=29.5
DIMM MASS (MG)	=29.56
BLADE SIZE	=204.8
SIMM RATE (KHZ)	=25.500
R/H / LITER (KHZ)	=10.000
RECORD TIME (SEC)	=8
ROTATION RATE	=1831
MINIMUM (HZ)	=13
MINIMUM (L-HMMI)	=1
SIMM HI PS1/VOL	=0.0005
SIMM HI CRIM (HMS)	=20
SIMM HI CRIM (HMS)	=0.93
SEMI-AR LHL REF	=124
SENSOR DIST (FT)	=160.0



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DPS6237E.DAT

PLOT DATE 11-JUL-83

PLOT TIME 16:30:25

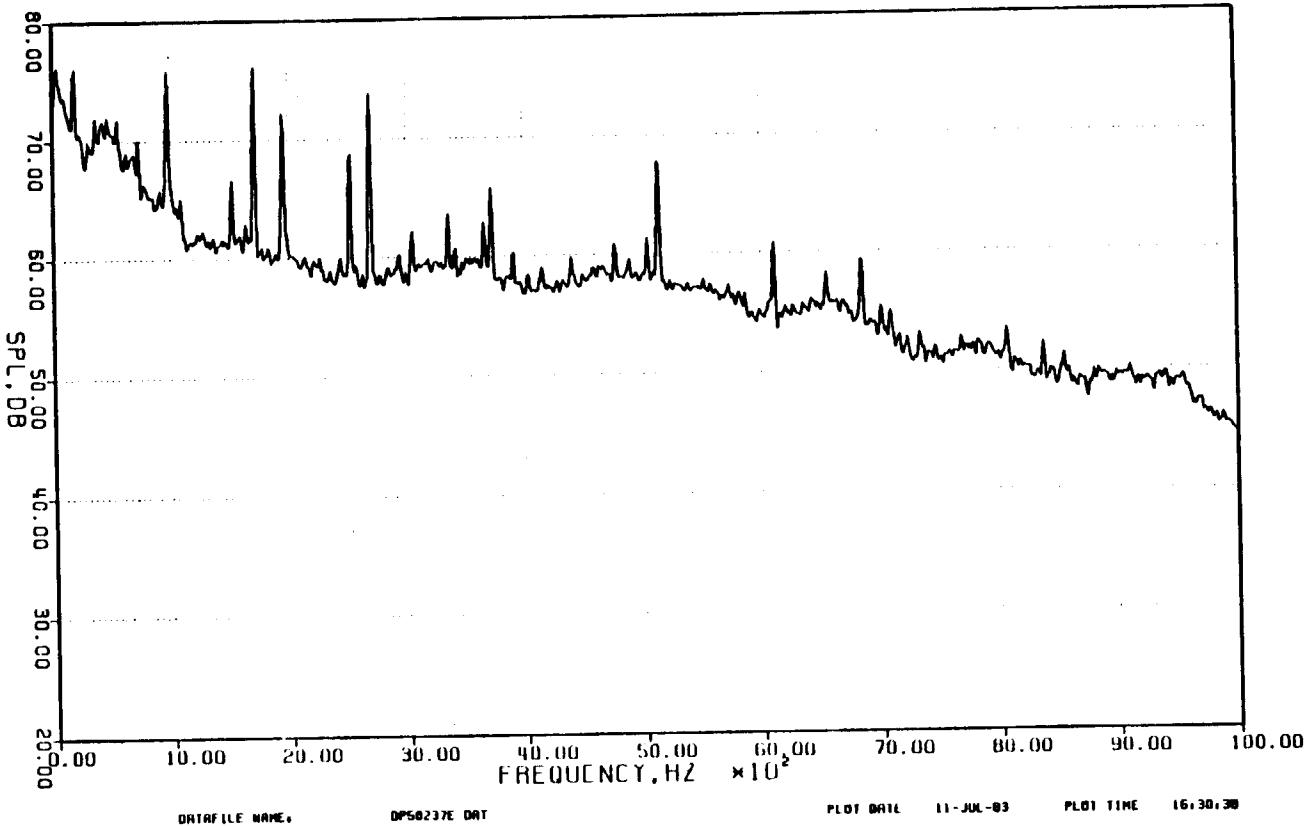
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Appendix 9.2.1.j

AVERAGED SPECTRUM

100 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D . DATE: 8-JUN-83  
TAPE: E315 . 30 IPS  
FAN = 1831 RPM, CORE = 10910 RPM

RUN NO.	-7
POINT NO.	-237
DPS	-877
NO. OF BLADES	-32
TEMP DAY (DEG.F)	-65.0
TEMP WET (DEG.F)	-54.5
BINNO PRESS (LNG)	-2.000
BINNO TIME (SEC)	-204.0
SUMP RATE (IN/H)	-25.600
W/H FLOW (IN/H)	-10.000
W/H DNU TIME (SEC)	-0
W/H HNGLS	-100
BINNO W/H (IN/H)	-13
BINNO HNGL (IN/H)	-1
SENSOR PSV/VOL	-0.0005
SENSOR GAIN (DB)	-20
SENSOR CH10 RMS	-0.95
SENSOR CAL REF	-124
SENSOR DIST (FT)	-150.0

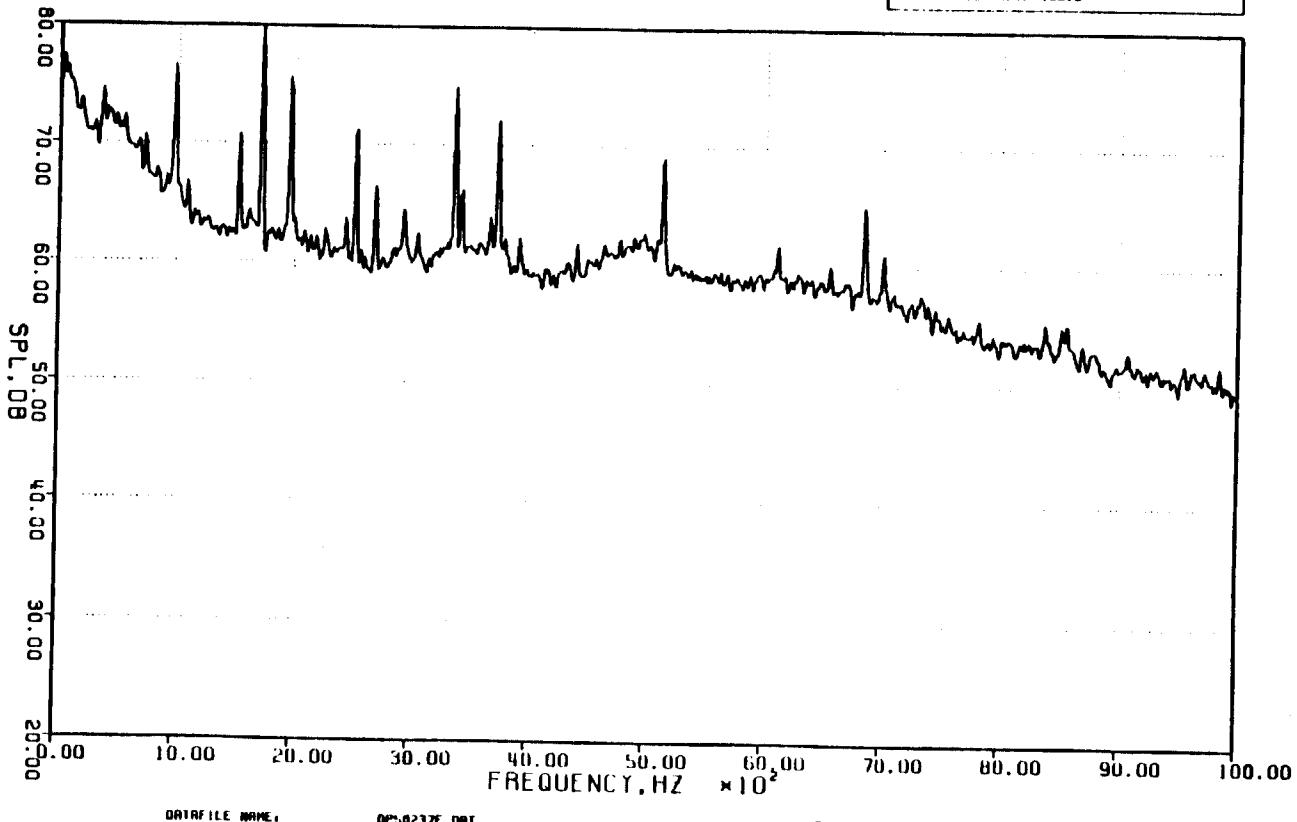


## Appendix 9.2.1.k

## AVERAGED SPECTRUM

110 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 1631 RPM, CORE = 10910 RPM

RUN NO.	7
POINT NO.	237
BPF	877
NO. OF BLANKS	26
TEMP DAY (DEG F)	76.0
TEMP NIGHT (DEG F)	54.8
WIND PRESS (IN Hg)	28.50
BLOCK SIZE	2148
WIND SPEED (IN/HZ)	-25.800
A/D FILTER (IN/HZ)	<10.000
MEAS TIME (SEC)	100
AVL RADS	110
MIN/MAX(DIM, INCH)	13
MIN/MAX(1+HMM)	1
SEISMIC PSI/VOLT	-0.0006
SEISMIC GAIN (DB)	-20
SEISMIC GAIN (DBS)	0.93
SEISMIC GAIN (DB)	125
SENSOR DIST (FT)	150.0



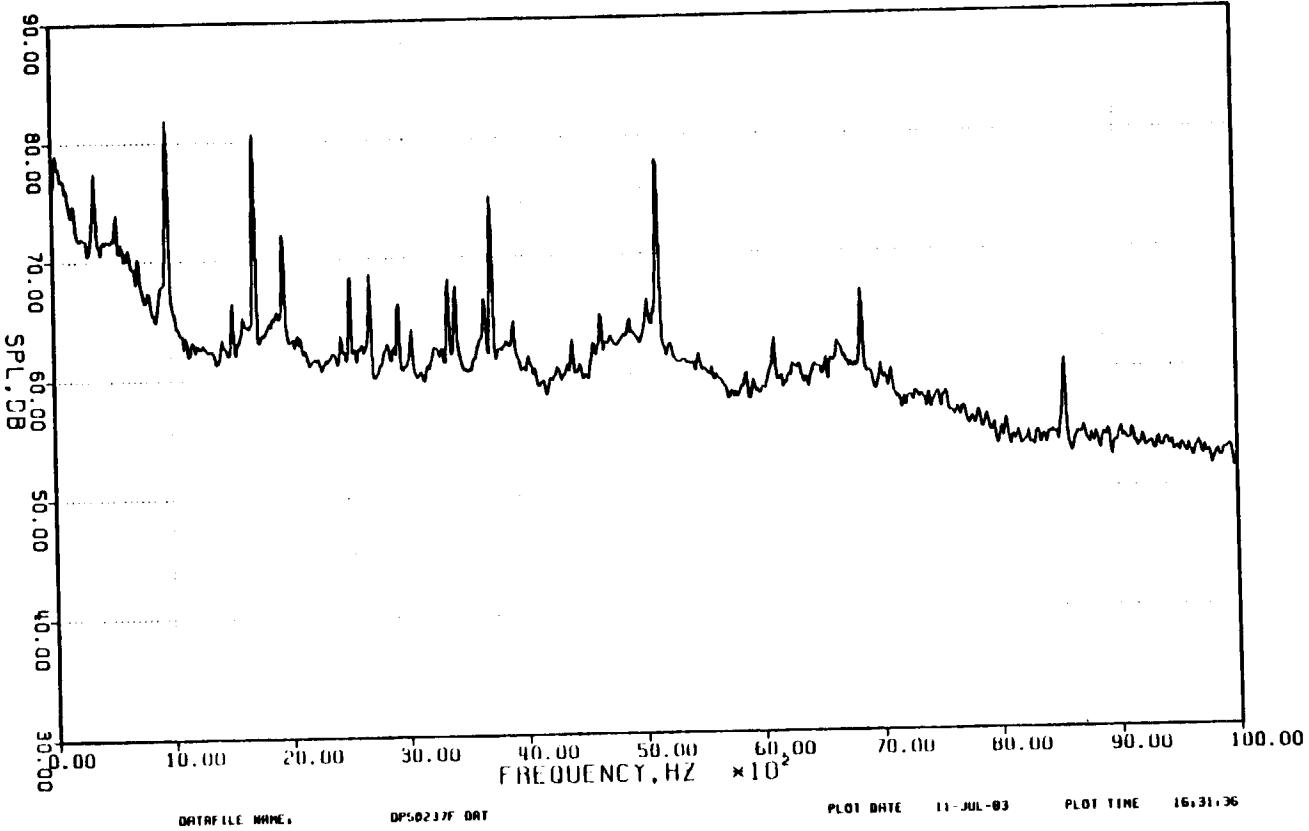
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### Appendix 9.2.1.1

#### AVERAGED SPECTRUM

120 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY THREADED  
SITE 40 , DATE: 8-JUN-83  
TAPE: E315 . 30 IPS  
FAN = 1831 RPM, CORE = 10910 RPM

RUN NO.	-7
POINT NO.	-337
BPF	-877
NO. OF BLADES	-32
TEMP DAT (DEG.F)	-65.0
TEMP HLT (DEG.F)	-54.5
BLADE PRESS (IN.HG)	-28.50
BLADE SIZE	.2040
SPINDLE RPM (HZ)	-15.600
W/D F/T (DEG.RAD)	-10.000
REC'D TIME (CLL)	-8
OVERHLS	-100
BINNWDTH (HZ)	-13
BINNWDTH (RAD)	-1
SENSOR PS1/VOL1	-0.0005
SENSOR PS1/VOL2	-0.00
SENSOR CALIB RMS	-0.92
SENSOR LHL REL	-124
SENSOR DIST (FT)	-160.0



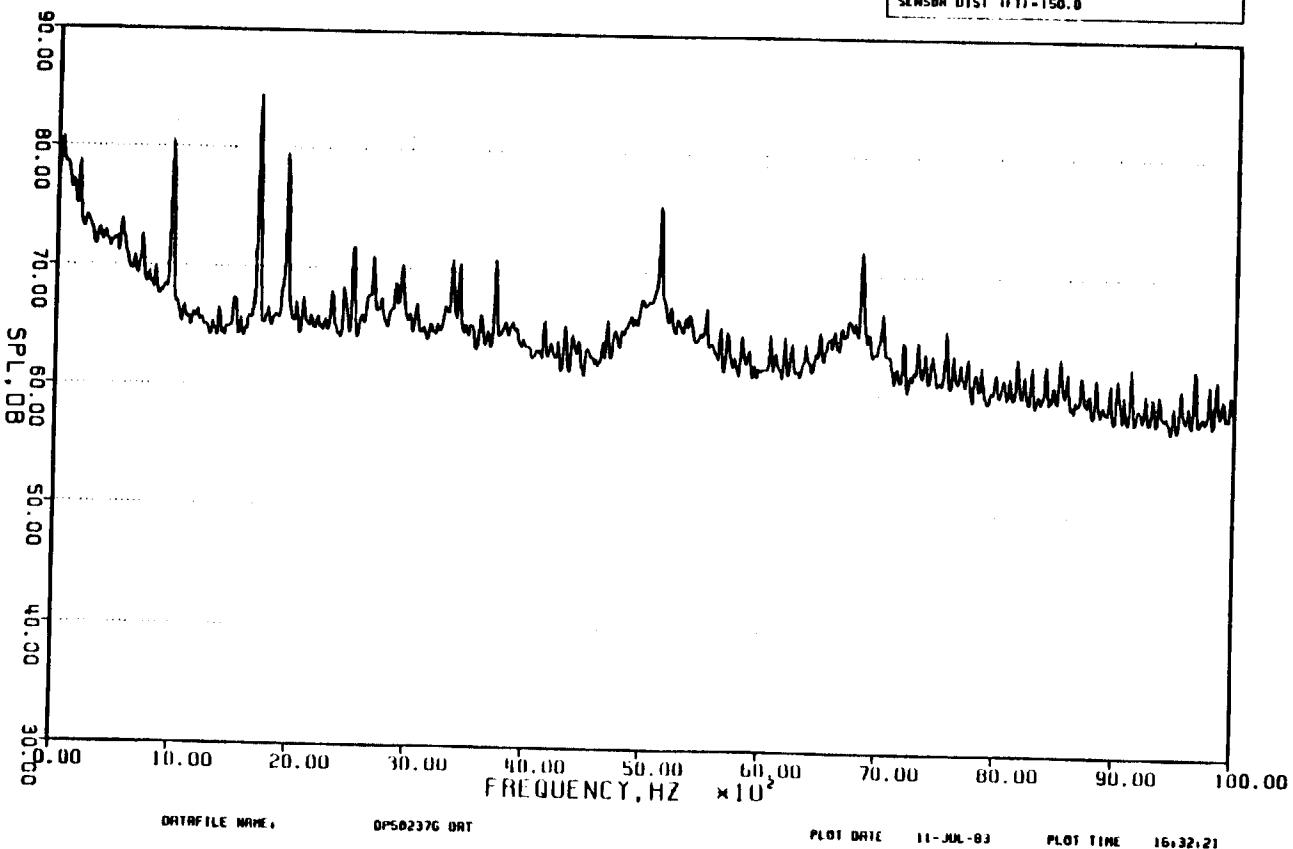
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## Appendix 9.2.1.m

## AVERAGED SPECTRUM

130 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 1831 RPM, CORE = 10910 RPM

RUN NO.	=7
POINT NO.	=237
BPF	=977
NO. OF BLADES	=32
TEMP. INT. (DBC) F	=65.0
TEMP. WLT. (DBC) F	=65.0
BARO. PRESS. (*Hg)	=28.50
BLADE SIZE	=204.8
SHARP HIRE (INCH)	=25.600
A/V (1/1000 INCH)	=10.000
MICROPHONE TIME (SEC)	=8.000
HV1 BIAS (V)	=100
MINIMUM THD (HZ)	=13
MINIMUM (L-N) MM	=1
SENSOR FST/VOLT	=0.0005
SENSOR GAIN (DB)	=70
SENSOR L10 RMS	=0.91
SENSOR L10 REF	=1%
SENSOR DIST (FT)	=150.0



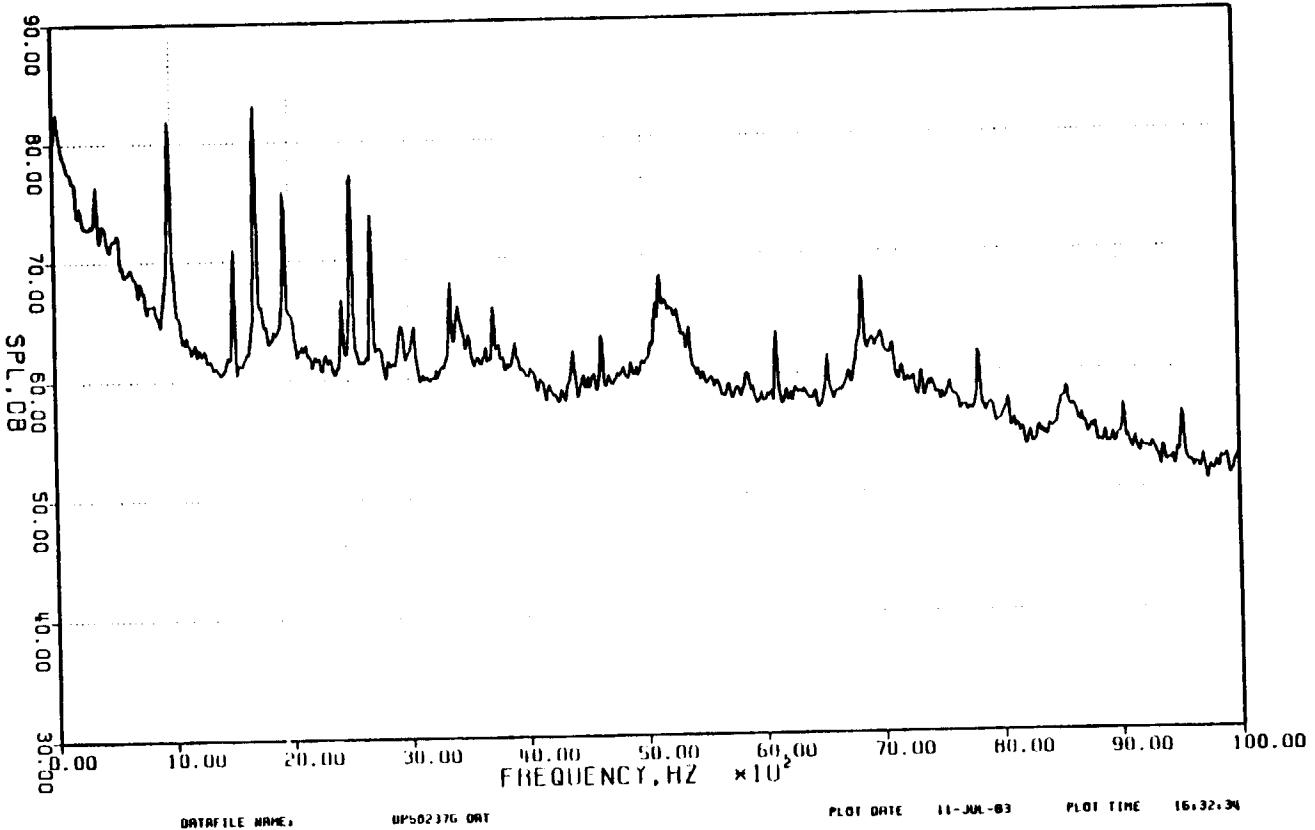
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Appendix 9.2.1.n

AVERAGED SPECTRUM

140 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY THREADED  
SITE 4D , DATE: 8-JUN-83  
TAPE: E315 , 30 IPS  
FAN = 1831 RPM. CORE = 10910 RPM

HUM NO.	= 7
POINT NO.	= 237
BPF	= 877
NO OF BLADES	= 2
BLADE ORG F1	= 65.0
BLADE M1 (deg F)	= 54.5
BLADE PRESS (lb/in)	= 20.50
BLADE SIZE	= 20x8
SAMPLE RATE (kHz)	= 25.600
DATA POINTS (kHz)	= 10.000
REC RECORD TIME (sec)	= 8
REC HOURS	= 100
REC WIDTH (Hz)	= 13
MINIMUM (Hz)	= 1
SENSOR PSY/DET = 0.0005	
SENSOR CH1W (dB) = 20	
SENSOR CH1B (dB) = 0.96	
SENSOR CH1C (dB) = 1.74	
SENSOR DIST (ft) = 150.8	



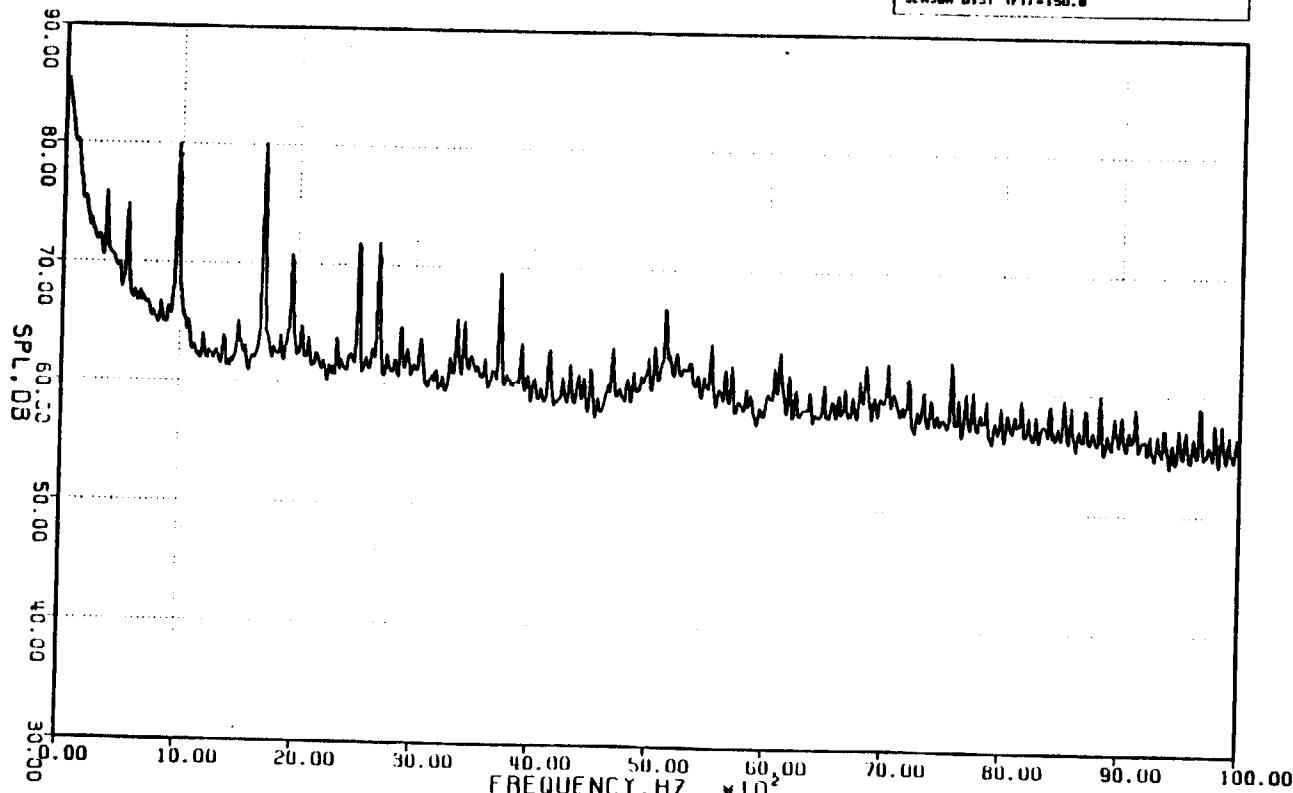
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## Appendix 9.2.1.o

## AVERAGED SPECTRUM

150 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 1831 RPM, CORE = 10910 RPM

RUN NO.	-7
POINT NO.	-337
SPF	-877
NO. OF BLADES	-32
TEMP BAT (DEG.F)	-55.0
TEMP MET (DEG.F)	-55.0
BAND PRESS (INCH)	-29.50
BLD DIA. SIZE	-204.8
SAMP RATE (HZ)	-25,600
AVG FILTER (HZ)	-10,000
AVG ORDER (TIME SEC)	-6
AVG RANGES	-100
BANDWIDTH (HZ)	-13
MIN/MAX (1-HOUR)	-1
SEN:DM PSI/VOLT	-0.0005
SEN:DM GRIN (DB)	-20
SEN:GRIN (DB)	-0.51
SEN:GRIN REF	-12
SEN:SBM DIST (FT)	-150.0



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PLOT DATE 11-JUN-83

PLOT TIME 16:33:19

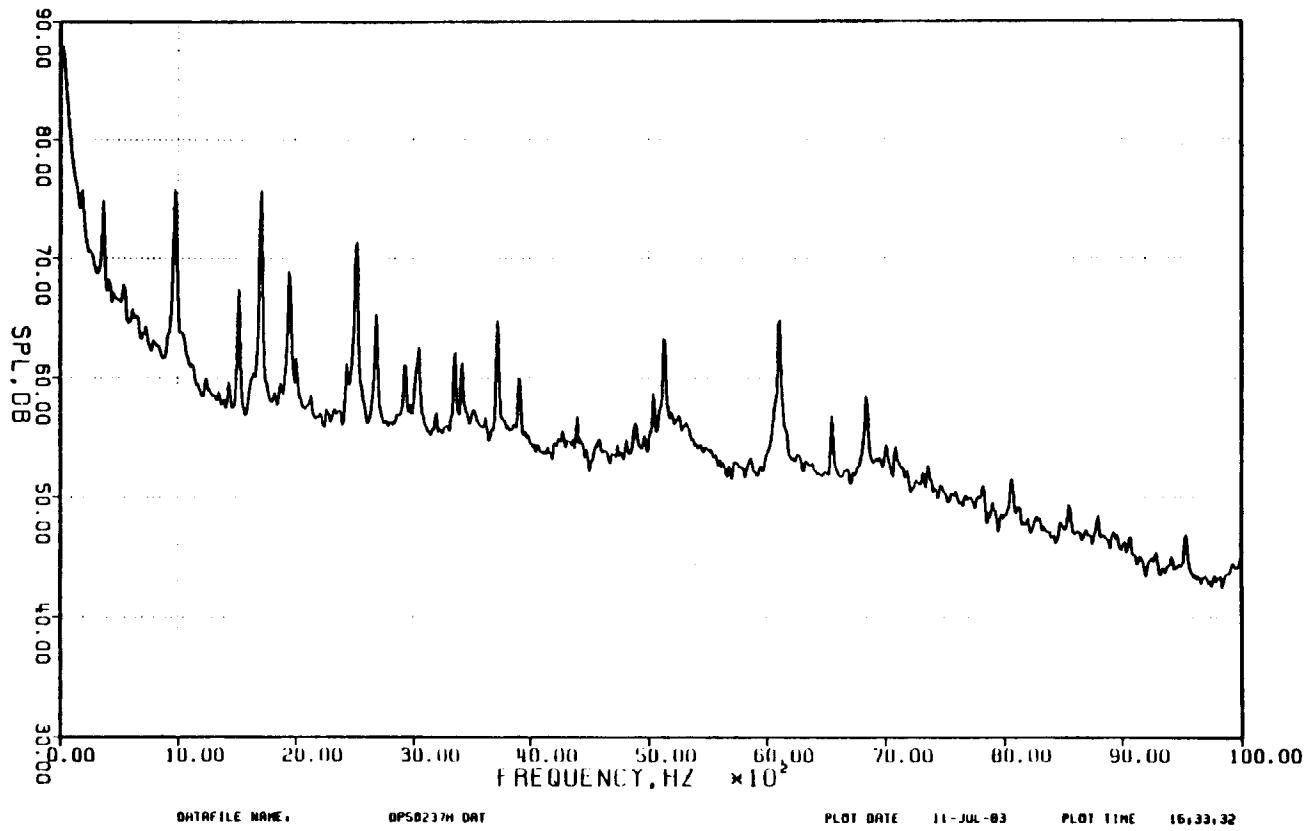
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Appendix 9.2.1.p

AVERAGED SPECTRUM

160 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D . DATE: 8-JUN-83  
TAPE: E315 , 30 IPS  
FAN = 1831 RPM, COURE = 10910 RPM

RUN NO.	= 7
POINT NO.	= 237
BPF	= 877
NO. OF BLOCKS	= 2
FREQ. DRY (DEG. F)	= 265.0
FREQ. MEL (DEG. F)	= 54.5
WIND PRESS (PSI)	= 29.50
BLOCK SIZE (INCH)	= 204.8
JUMP RATE (INCH)	= 25.600
ROLL OVER (INCH)	= 0.000
ROLL TIME (SEC)	= 8
OVERLAP %	= 100
NUMBER OF HARM	= 13
WINDOW (1/HARM)	= 1
NUMBER PSI/VOLT	= 0.0005
NUMBER CHIN (DB)	= 20
NUMBER CHIN (DB)	= 0.09
NUMBER CHI (dB)	= 74
NUMBER DIST (ft)	= 150.0



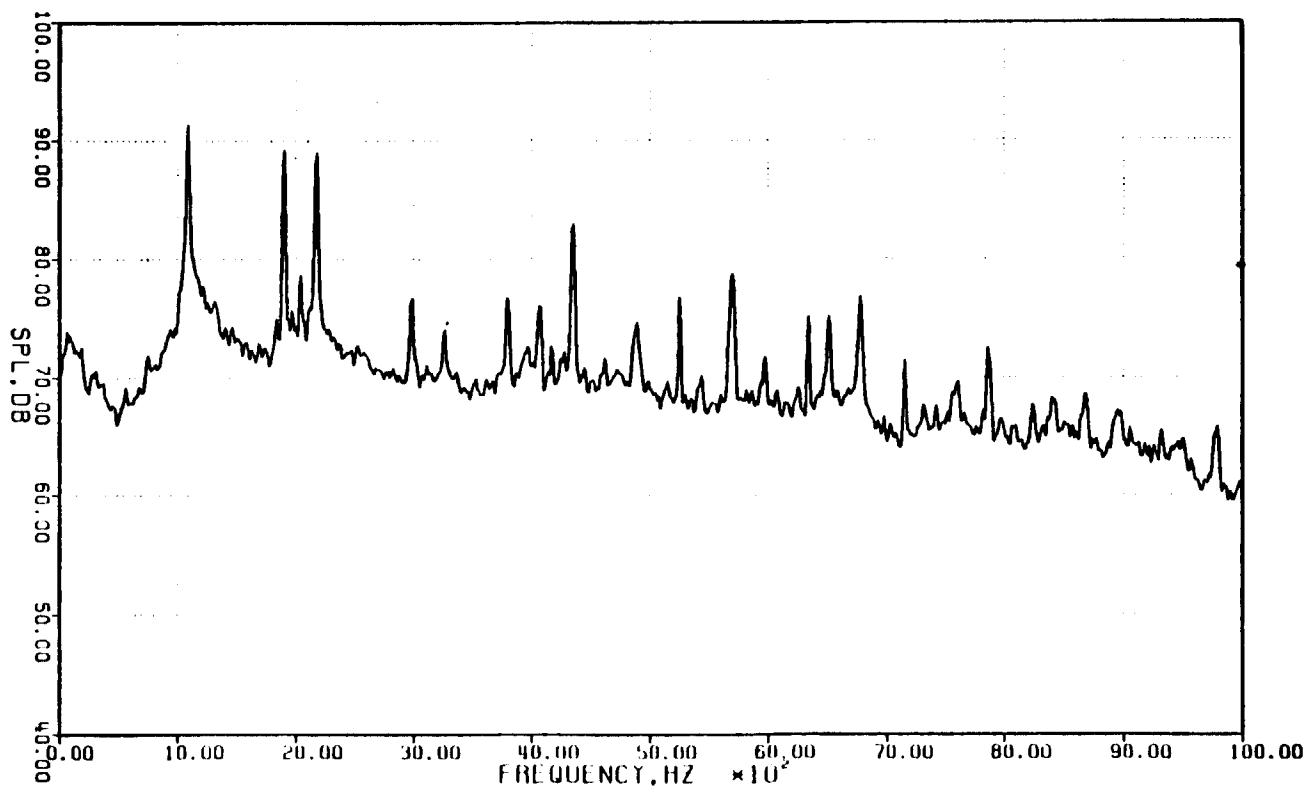
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## Appendix 9.2.2.a

## AVERAGED SPECTRUM

10 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2037 RPM, CORE = 11250 RPM

RUN NO.	= 30
POINT NO.	= 1006
NO. OF BLADES	= 22
TEMP. INT. (DEG. F.)	= 58.0
AMBI. PRESS. (IN. Hg)	= 29.58
BLADE SPAN	= 2048
SHFT. RATE (HZ)	= 25.600
A/V. FILTER (HZ)	= 10.000
MEAS. TIME (SEC)	= 60
AVERAGES	= 100
DAMPING (HZ)	= 13
MIN.DRIFT (MM/H)	= 1
SIM:DR. PS1/VOL	= 0.0016
SIM:DR. GAIN (DB)	= 10
SIM:DR. CH1 TO RMS	= 0.90
SIM:DR. CH1 AVE	= 125
SENSOR DIST. (FT)	= 150.0



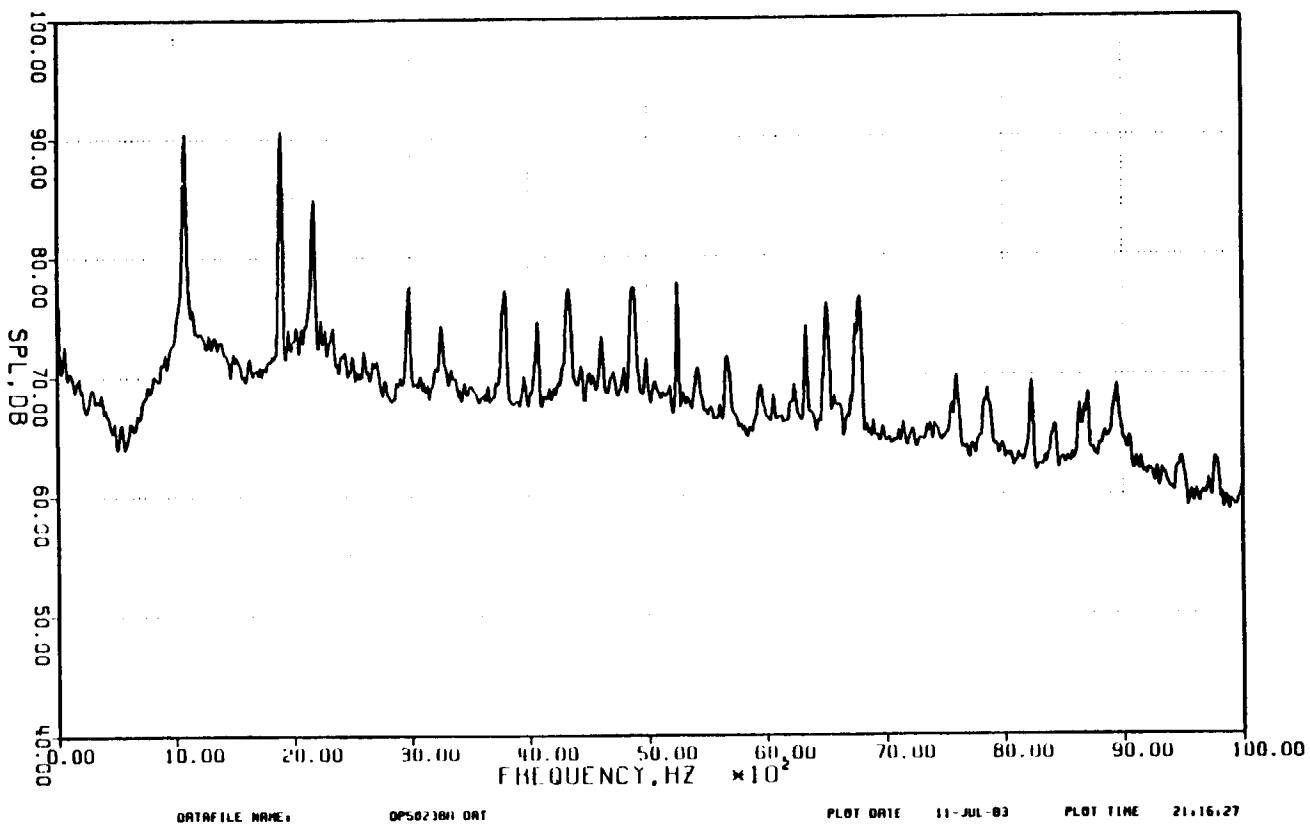
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Appendix 9.2.2.b

AVERAGED SPECTRUM

20 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D , DATE: 8-JUN-83  
TAPE: E315 . 30 IPS  
FAN = 2037 RPM. CORE = 11250 RPM

RUN NO.	-8
POINT NO.	-238
REC'D BY	-1096
N.D. OF BLUES	-32
TEMP DAT (DEG.F)	-65.0
TEMP NET (DEG.F)	-54.5
BIRD PRESS (PSI MG)	-29.50
BLOCK SIZE	-2048
SAMPLE RATE (HZ)	-15.600
WAVELET FILTER (HZ)	-10.000
W/L LOAD TIME (SEC)	-8
AVERAGES	-100
WINDOW(DITH HZ)	-13
WINDOW(DITH HZ)	-1
SENSOR P/(VOLT)	-0.0016
SENSE GAIN	-1.0
SENSE H	-1.0
SENSE B RMS	-0.89
SENSE B (IN REF)	-124
SENSE DIST (FT)	-150.0



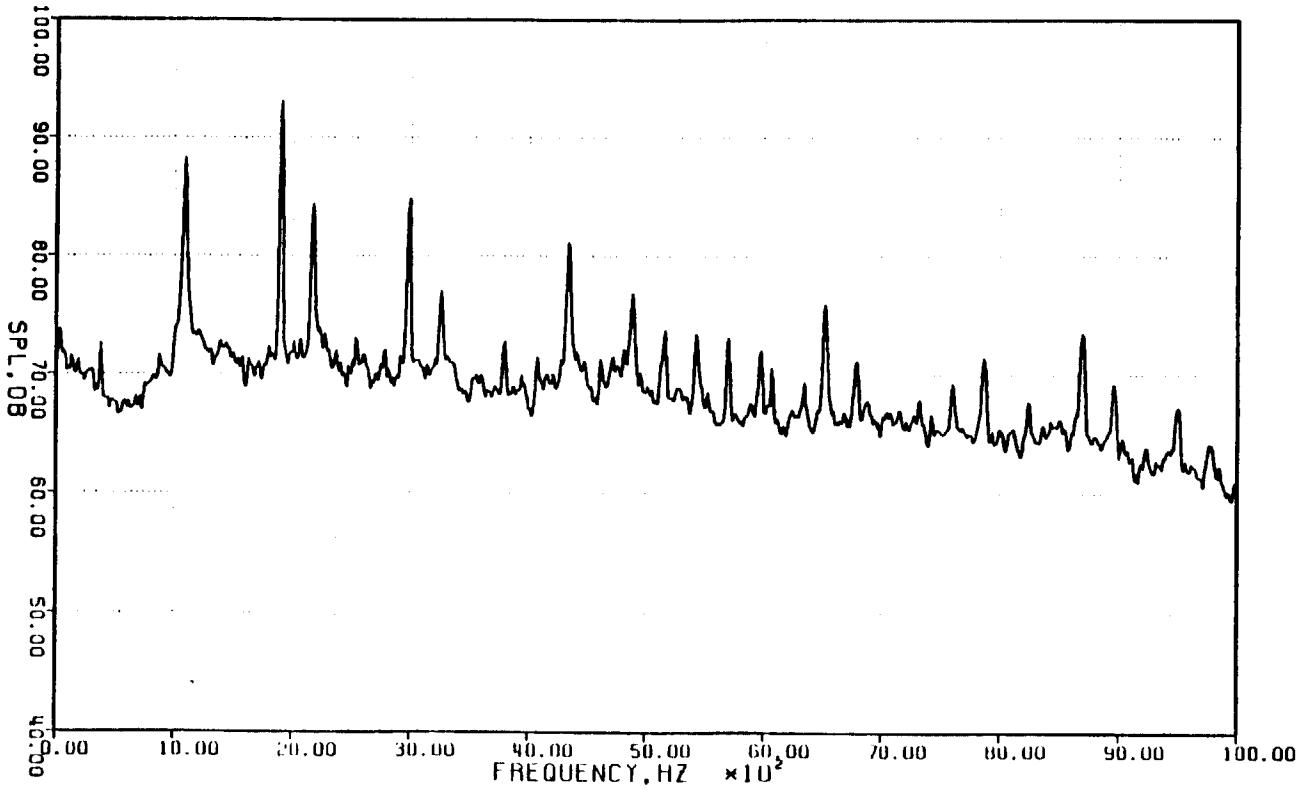
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## Appendix 9.2.2.c

## AVERAGED SPECTRUM

30 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FHN = 2037 RPM. CORE = 11250 RPM

RUN NO.	-8
POINT NO.	-238
WPF	-1086
NO. OF BLOCKS	-32
TEMP OUTSIDE, F	-55.0
TEMP MFT, 100°C, F	-55.0
BINNO PER 55 °F NGI	-29.50
BINNO SIZE	-21M8
SIMP RATE, HZ/2	-71.600
N/H (ELETTRO) HZ/2	-10.000
RECORD TIME SEC/2	-6
WV/NRMS	-100
BINNO/DTH, HZ/2	-13
WINDOW(DT), HNM	-1
SENSOR PS1/VN1	-0.0016
SENSOR GRIN, DBI	-10
SENSOR CH1D RMS	-0.90
SENSOR CH1C RMS	-124
SENSOR DIST (11)	-150.0



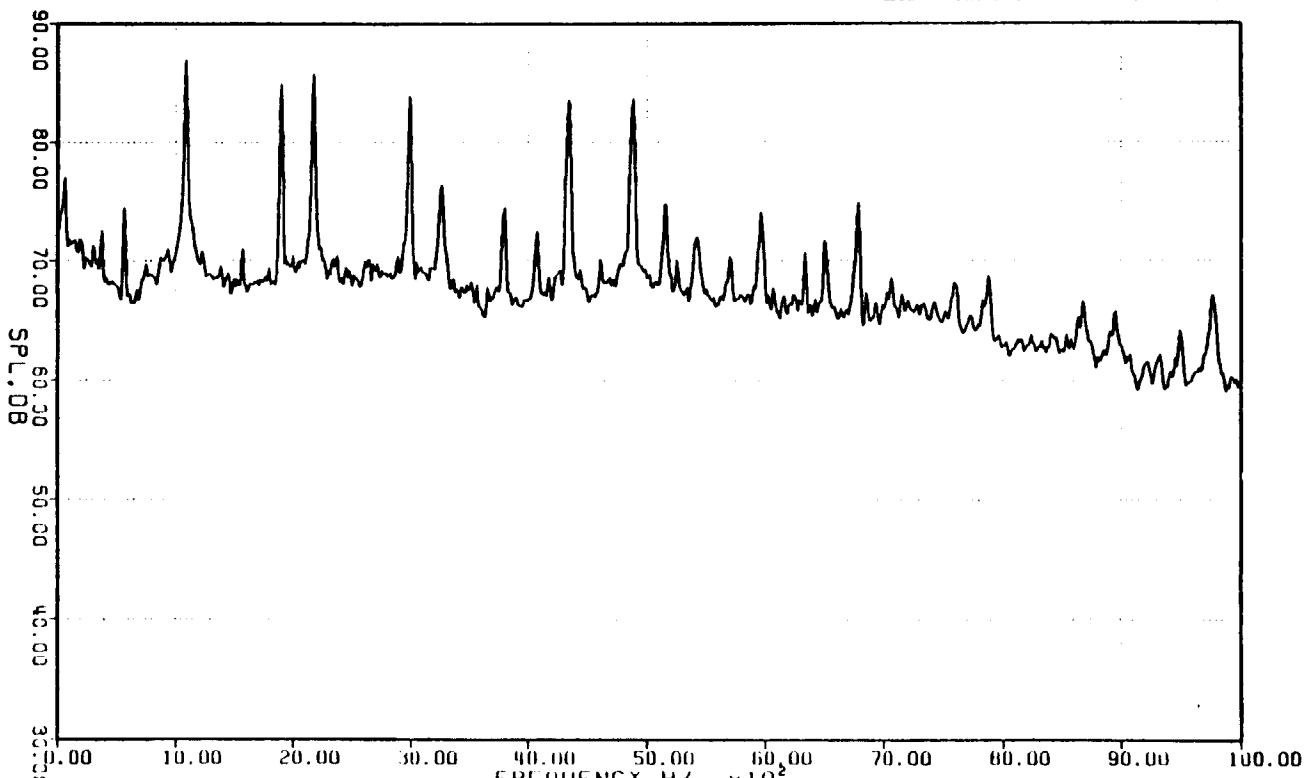
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Appendix 9.2.2.d

AVERAGED SPECTRUM

40 DEC G/P  
 E CUBED FEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D, DATE: 8-JUN-83  
 TAPE: E315, 30 IPS  
 FAN = 2037 RPM, CORE = 11250 RPM

RUN NO.	-8
POINT NO.	-230
BPF	-1086
NO. OF BLADES	-32
TEAR OFF (DEG.F)	-65.0
TEAR ON (DEG.F)	-55.5
BWMS PRESS (INCH)	-29.50
BLOCK SIZE	-2048
SHMP RATE (HZ)	-25.600
A/FILTER (HZ)	-10.000
HOLD TIME (SEC)	-100
BLW RATE	-100
BLW WIDTH (HZ)	-13
MINIMUM (HZ)	-1
SEN:ON PS1/VOLT	-0.0016
SEN:ON CAL (DB)	-10
SEN:ON CAL (DB) RMS	-0.93
SEN:ON CAL (FT)	-1.74
SENSOR DIST (FT)	-150.0



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DATAFILE NAME:

DPS02388.DAT

PLOT DATE 11-JUL-83

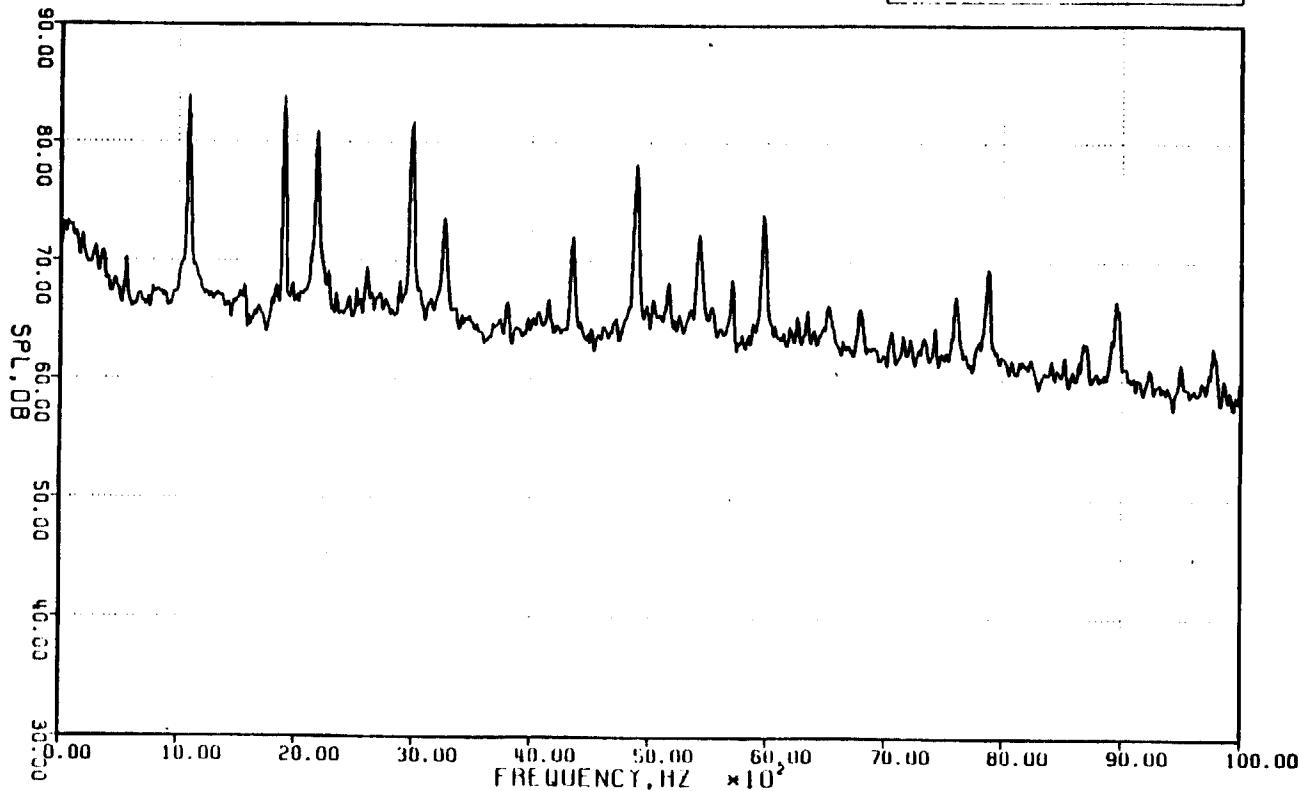
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## Appendix 9.2.2.e

## AVERAGED SPECTRUM

50 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2037 RPM, CORE = 11250 RPM

RUN NO.	-8
POINT NO.	-138
OFF	-1000
NO. OF BLADES	-32
TEMP DAT (DEG.F)	-65.0
TEMP WAT (DEG.F)	-54.5
BINNO (IN SEC) (1/MIN)	-2.000
BLADE SIZE	-2.000
SIMP RATE (HZ)	-25.600
R/H (ITEM 1001)	-10.000
RELOAD TIME (SEC)	-0
AVG PAGES	-100
MIN DFT (HZ)	-13
MINBW (HZ)	-0.0005
SENSOR PS1/VOL I	-0.0005
SENSOR GAIN (DB)=	-20
SENSOR FR10 RMS	-0.93
SENSOR CH1 REF	-124
SENSOR DIST (FT)	-150.0



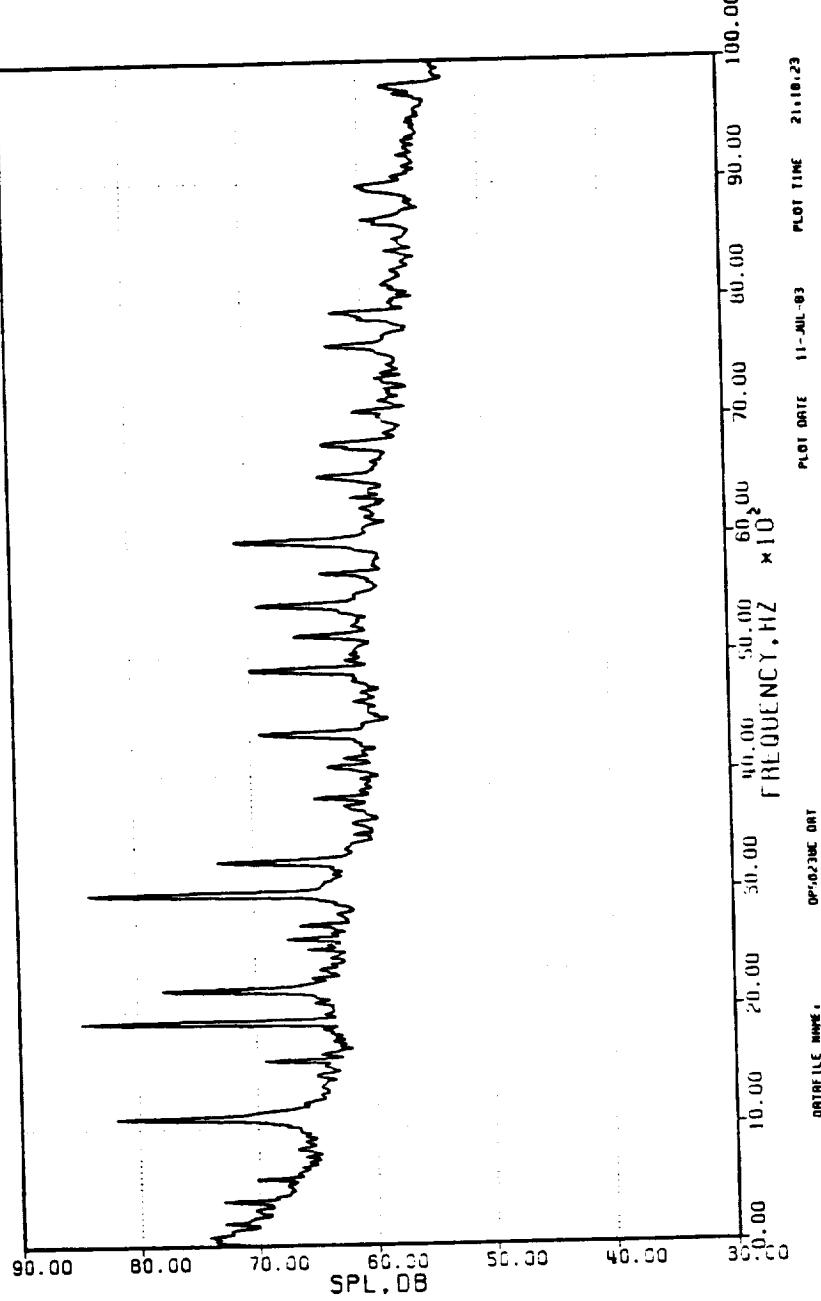
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Appendix 9.2.2.f

AVERAGED SPECTRUM

60 DEG G/P  
E CUBED PEBBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 40 • DATE: 8-JUN-83  
TAPE: E315 • 30 IPS  
FAN = 2037 RPM. CORE = 11250 RPM

Run No.	Point No.
1-25	1-1006
2-25	2-1006
3-25	3-1006
4-25	4-1006
5-25	5-1006
6-25	6-1006
7-25	7-1006
8-25	8-1006
9-25	9-1006
10-25	10-1006
11-25	11-1006
12-25	12-1006
13-25	13-1006
14-25	14-1006
15-25	15-1006
16-25	16-1006
17-25	17-1006
18-25	18-1006
19-25	19-1006
20-25	20-1006
21-25	21-1006
22-25	22-1006
23-25	23-1006
24-25	24-1006
25-25	25-1006
26-25	26-1006
27-25	27-1006
28-25	28-1006
29-25	29-1006
30-25	30-1006
31-25	31-1006
32-25	32-1006
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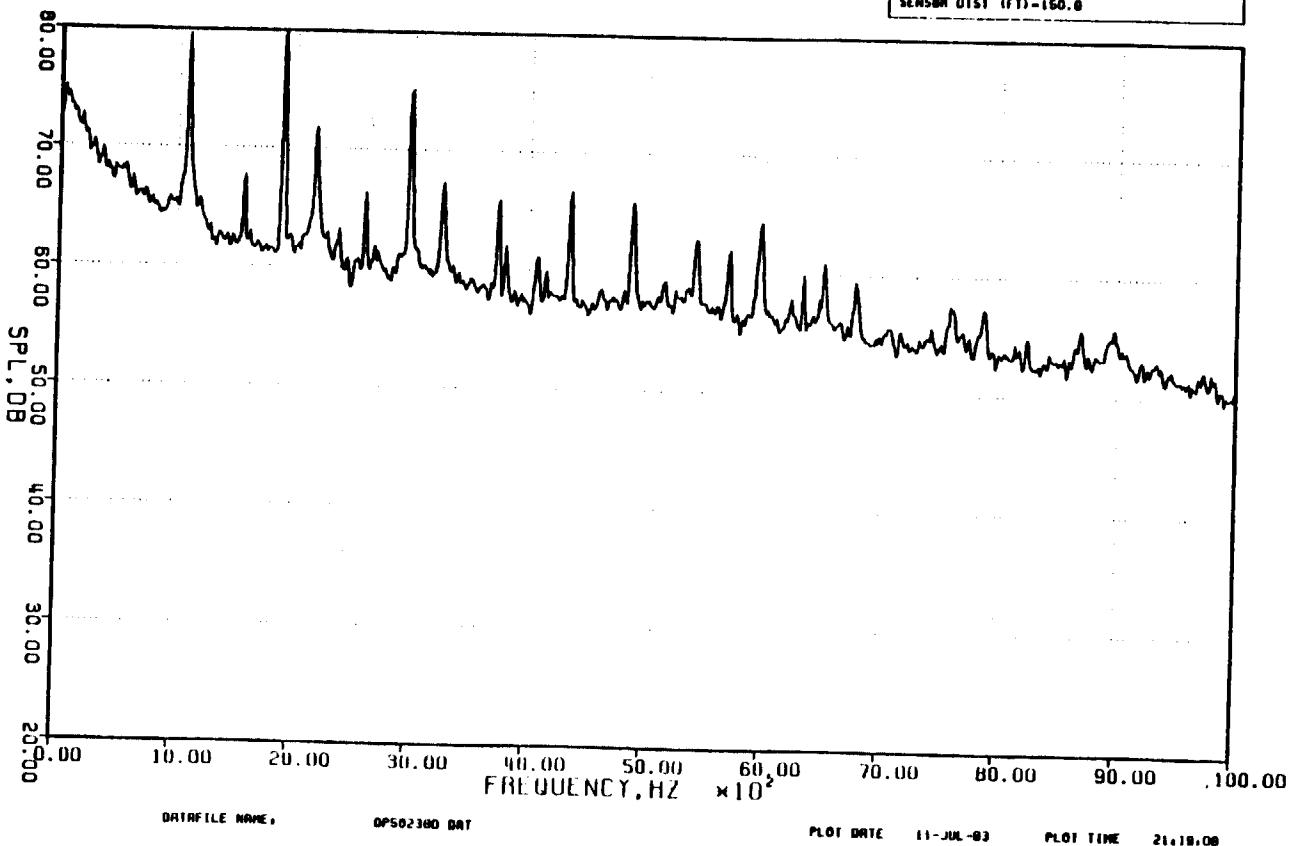


## Appendix 9.2.2.g

## AVERAGED SPECTRUM

70 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2037 RPM, CORE = 11250 RPM

RUN NO.	-8
POINT NO.	-230
OFF	-1086
NO. OF BLADES	-25
TEMP DHT (DEG.F)	-56.0
TEMP MET (DEG.F)	-54.6
WIND PRESS (PSI)	-29.50
BLADE SIZE	-2040
SHAW RATE (IN/H)	-25.500
REC'D TIME (IN/H)	-10.000
AVERAGES	-100
BANDWIDTH (IN/H)	-13
WINDOW (IN/H)	-1
SENSOR PSI/VOLT	-0.0006
SENSOR CH1 (DB)	-20
SENSOR CH19 (MS)	-0.92
SENSOR LIN. REF	-12
SENSOR DISI (FT)	-150.0



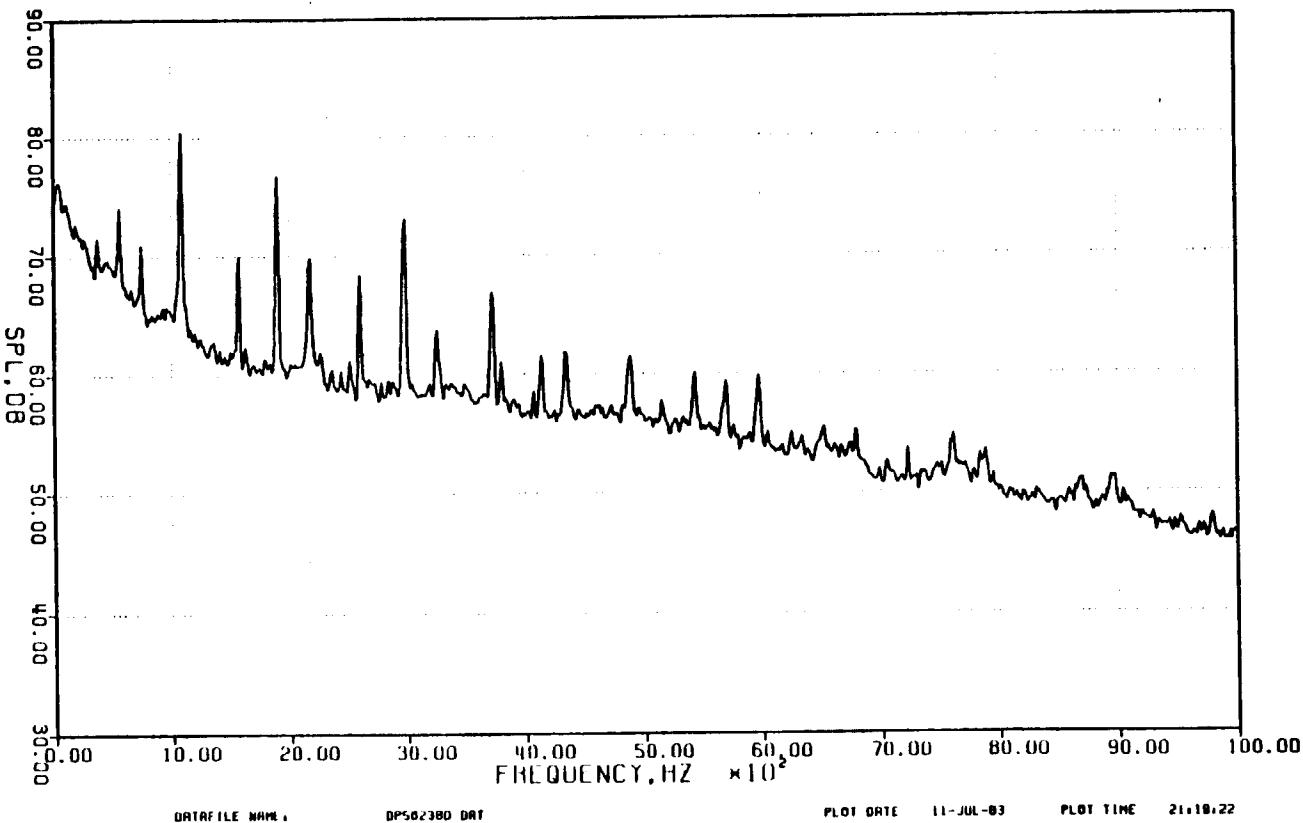
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Appendix 9.2.2.h

AVERAGED SPECTRUM

80 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2037 RPM, CORE = 11250 RPM

HUN NO.	-8
POINT NO.	-338
BPF	-1088
NO. OF BLOCKS	-1
TEMP DAY (DEG.F)	-65.0
TEMP WTR (DEG.F)	-56.5
GHHO PN 55 1" MG	-29.50
BLOCK SIZE	-2040
SIMP RATE (KHZ)	-25.000
A/D CONV RATE	-10.000
HELDOUT TIME (SEC)	-100
OVERDRAFT	-100
WAVELENGTH (HZ)	-13
MINDOM 11-HANNI	-1
SENSOR 151/VOLT	-0.0005
SENSOR 141/VOLT	-20
SENSOR 141 10 HZ	-91
SENSOR 141 REL	-124
SENSOR 151 1F1	-150.8



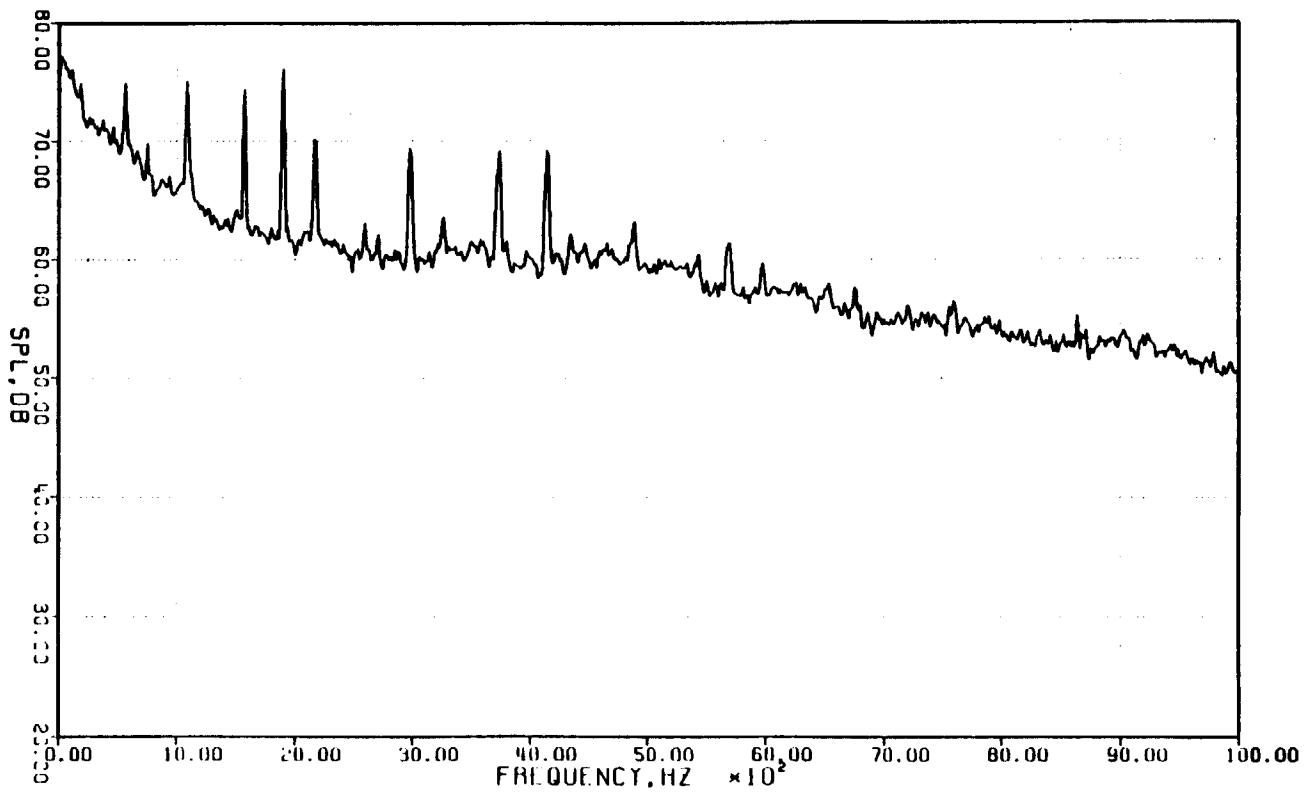
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## Appendix 9.2.2.1

## AVERAGED SPECTRUM

90 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2037 RPM, CORE = 11250 RPM

RUN NO.	-8
POINT NO.	-230
BPF	-1086
NO. OF BLADES	-12
TEMP DAY (DEG.F)	-65.0
TEMP NIGHT (DEG.F)	-54.5
DIAH PRESS (PSI)	-0.50
DIAM. (INCH)	-5.00
SHFT RATE (INCH)	-25.600
H/H FILTER (INCH)	-10.000
RECORD TIME (SEC)	-0
AVLNGES	-100
DIMMOTH (INCH)	-13
SIMSON FGT/VOL	-0.0005
SENSEUR GAIN (DB)	-20
SENSEUR CNT/RMS	-0.93
SENSEUR CAL MUL	-124
SENSEUR DIST (FT)	-150.0



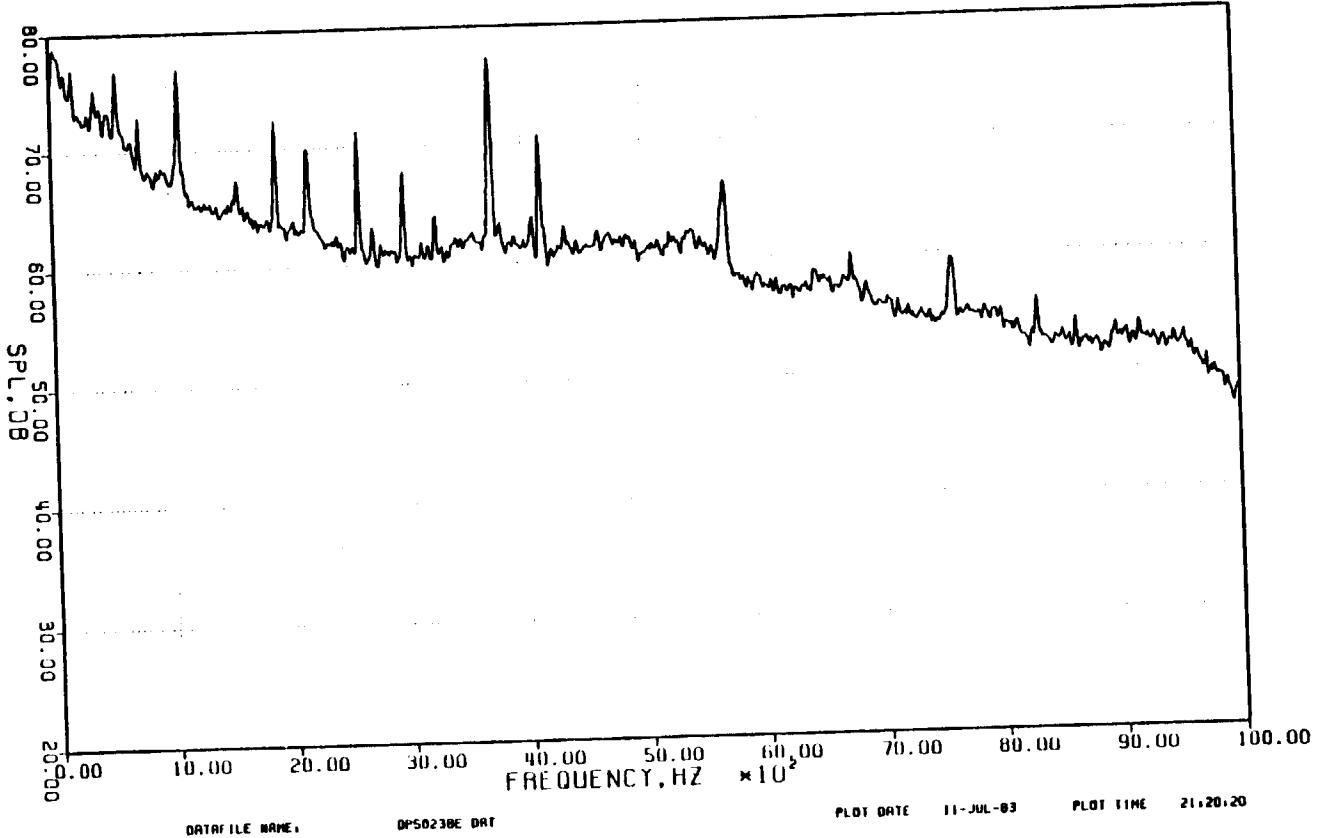
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Appendix 9.2.2.j

AVERAGED SPECTRUM

100 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2037 RPM, CORE = 11250 RPM

HUN NO.	=0
POINT NO.	=230
BPF	=1086
NO. OF BLADES	=32
TEMP DAT (deg.F)	=65.0
TEMP MET (deg.F)	=54.5
AMBI. PRESS (Torr)	=19.50
BLD. SIZE	=214.00
SIMP. RATE (MHz)	=1.000
AVL. TIME (SEC)	=10.000
AVL. Holes	=100
BLD. WIDTH (in.)	=13
WINDWIDTH (mm)	=
GEN. DFT (VOL)	=0.0005
SEN. DFT (VOL)	=20
SEN. DFT (A RMS)	=0.95
SEN. DFT (L RMS)	=124
SENSOR DIST (ft)	=150.0



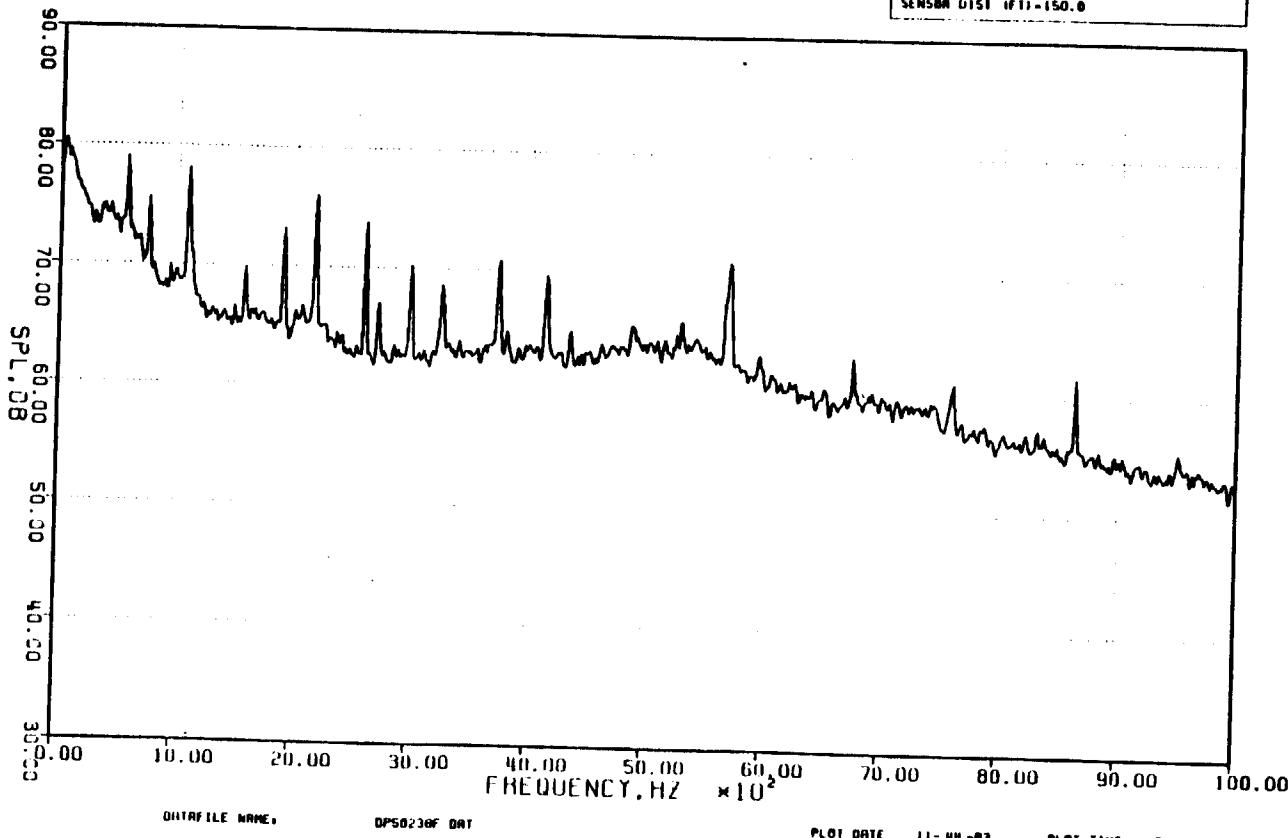
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## Appendix 9.2.2.k

## AVERAGED SPECTRUM

110 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY THREADED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2037 RPM. CORE = 11250 RPM

RUN NO.	-8
POINT NO.	-230
DPF	-1086
NO. OF BLADES	-32
TEMP DAY (DEG F)	-56.0
TEMP NIGHT (DEG F)	-54.6
BINAR PRESS (INCH)	-29.50
BLADE SIZE	-20MM
SIMP. WIDTH (INCH)	-25.500
PERIOD (T) (INCH)	-10.000
RELATION TIME (SEC)	-1.00
AVERAGE :	
MINIMUM (L1-HARM)	-13
SENSOR L1/VOL F	-1
SENSOR L1/HARM -0.0006	
SENSOR L1/HARM -20	
SENSOR L1/HARMS -0.93	
SENSOR L1/HARMS -12	
SENSOR L1/SF1 -150.0	

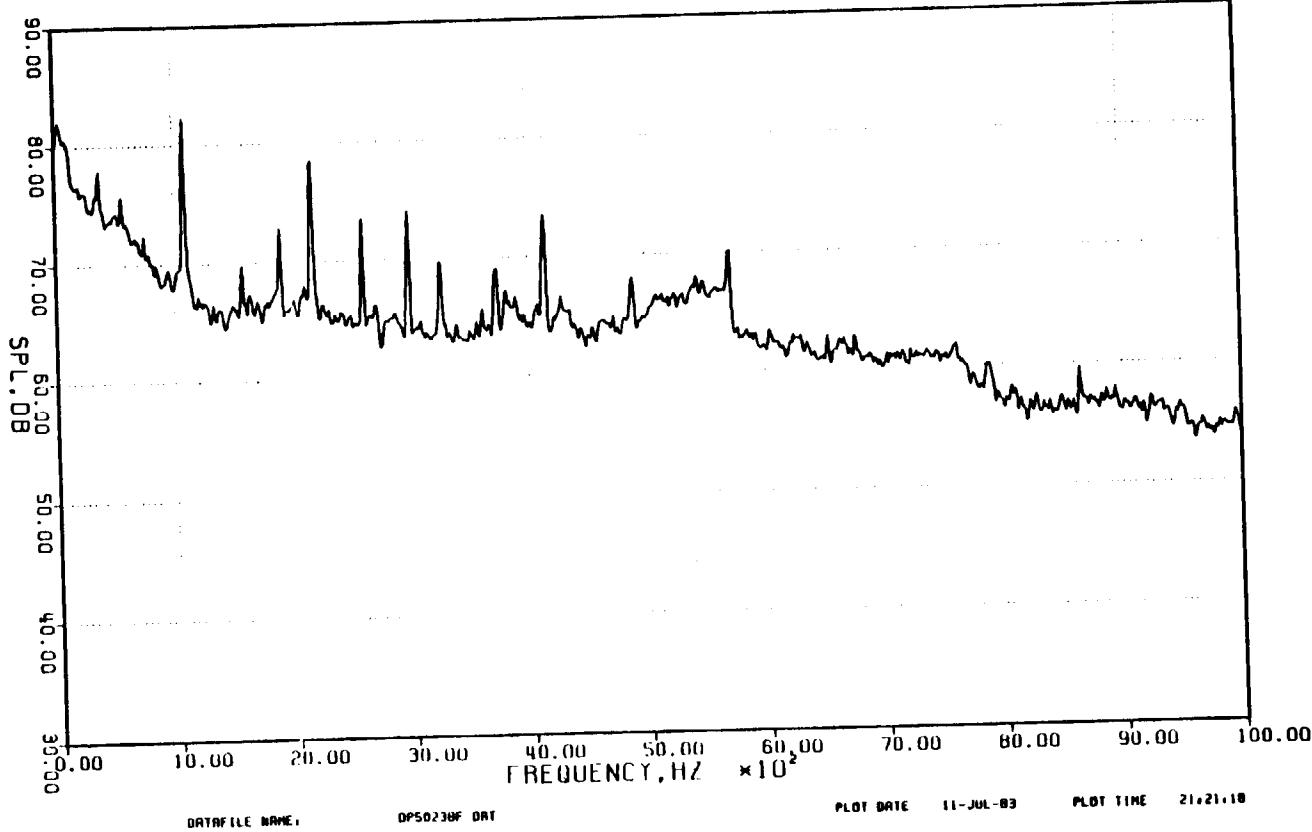


### Appendix 9.2.2.1

#### AVERAGED SPECTRUM

120 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2037 RPM, CORE = 11250 RPM

RUN NO.	8
POINT NO.	2236
BPF	1005
NO. OF BLADES	32
TEMP DRY (DEG.F)	65.0
TEMP WET (DEG.F)	54.5
AMBI. FINESS (*MCI)	29.50
BLDG A SITE	21MB
SIMP A RATE (HZ)	10.000
R/H A (10.000HZ)	10.000
WIND DUR TIME (SEC)	8
AVG RATES	100
MINIMUM DTH (HZ)	13
MINIMUM (1-HMM)	
SIM-DAT FILE VOL	0.0005
SIM-DAT CHIN (DB)	-20
SIM-DAT CHI B RMS	0.92
SIM-DAT CAL REF	-124
SIM-DAT DIS1 (F1)	150.0



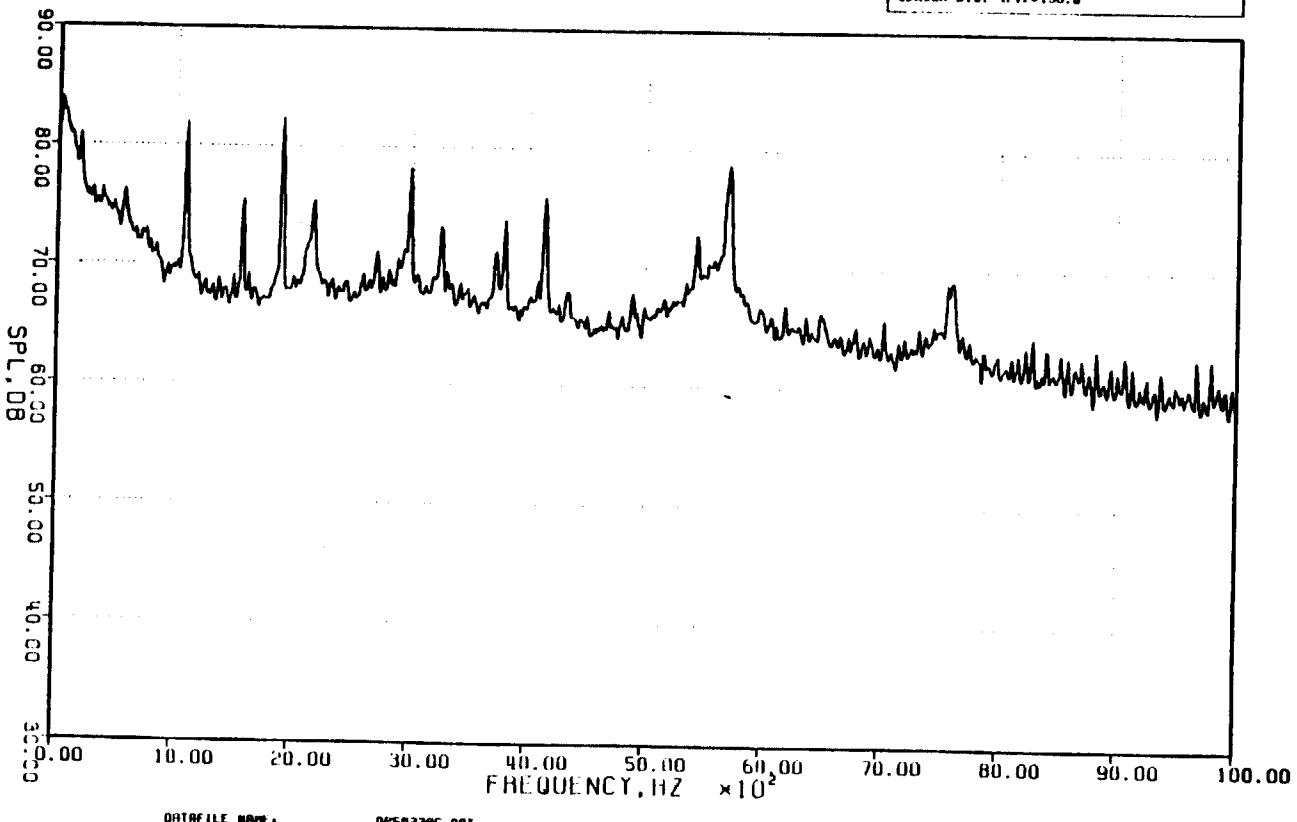
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## Appendix 9.2.2.m

## AVERAGED SPECTRUM

130 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2037 RPM. COHE = 11250 RPM

RUN NO.	-8
POINT NO.	-236
BPF	-1086
NO. OF BLADES	-32
TEMP DRY (DEG F)	-80.0
TEMP WET (DEG F)	-80.5
BLADE PRESS (INCH)	-24.50
BLADE SIZE	-2048
SINW RATE (HZ)	-21.500
A/D FILTER (HZ)	-10.000
MEAS TIME (SEC)	-8
MEAS RANGS	-100
MINMIDTH (HZ)	-10
MINMOM (1-MINAV)	-1
SENSOR PS1/VOLT	-0.0005
SENSOR GRIN (DB)	-20
SENSOR CALIB RMS	-0.91
SENSOR GRN REF	-124
SENSOR DIST (FT)	-150.0



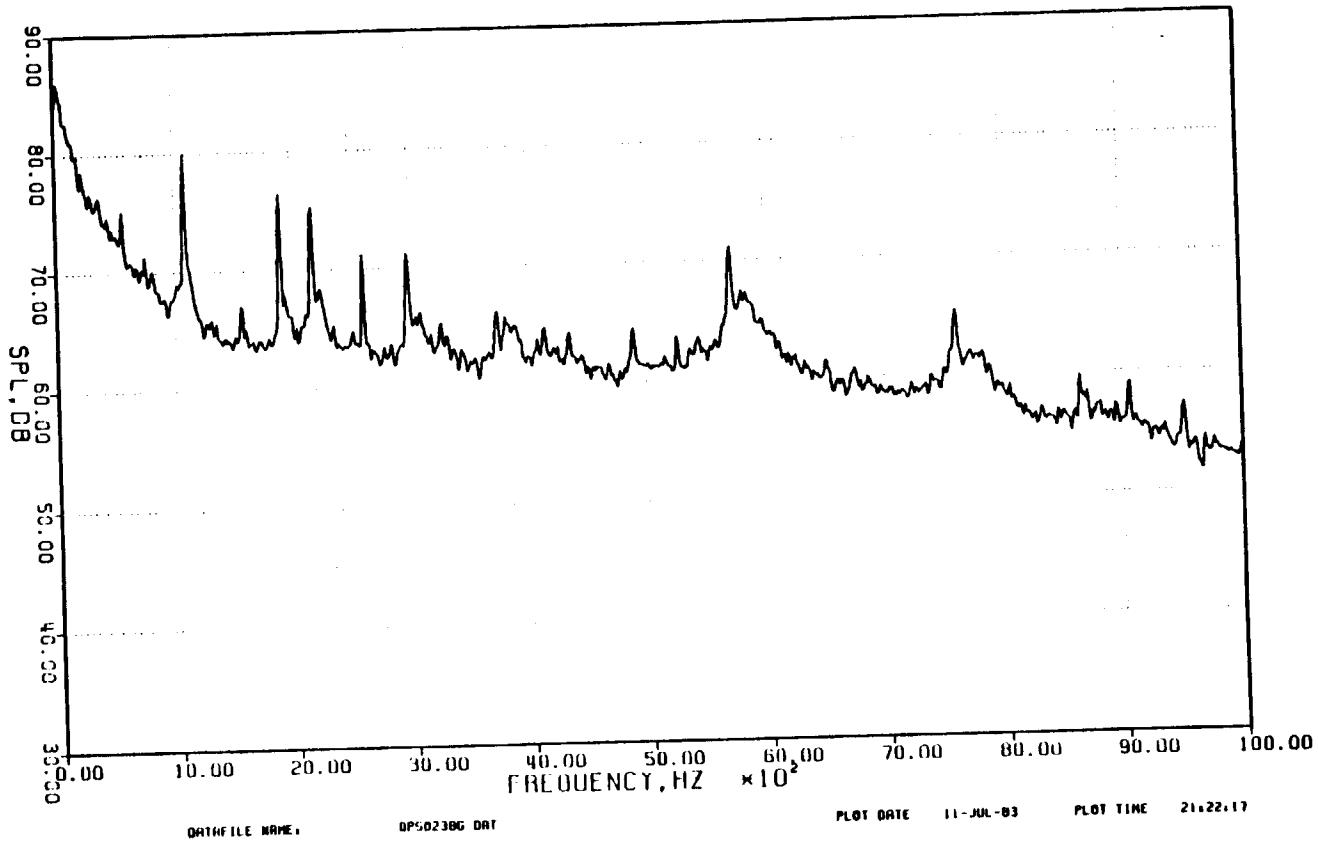
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Appendix 9.2.2.n

AVERAGED SPECTRUM

140 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2037 RPM, CONE = 11250 RPM

RUN NO.	-8
POINT NO.	-238
BPF	-1086
NO. OF BLADES	-165
TEMP DRY (DEG F)	-65.0
TEMP WET (DEG F)	-54.5
BLADE PRESS (INCH)	-29.50
BLADE SIZE	-2048
SPIN RATE (KHZ)	-25.600
A/D FILTER (KHZ)	-10.000
INITIAL TIME (SEC)	-1.00
AVERAGING TIME (SEC)	-100
WINDOW (HZ)	-13
WINDOW (T-HARMN)	-1
SENSOR PSV/VOLT	-0.0015
SENSOR GAIN (DB)	-10
SENSOR LAR10 RMS	-0.34
SENSOR LAR1 REF	-12
SENSOR DIST (FT)	-150.0

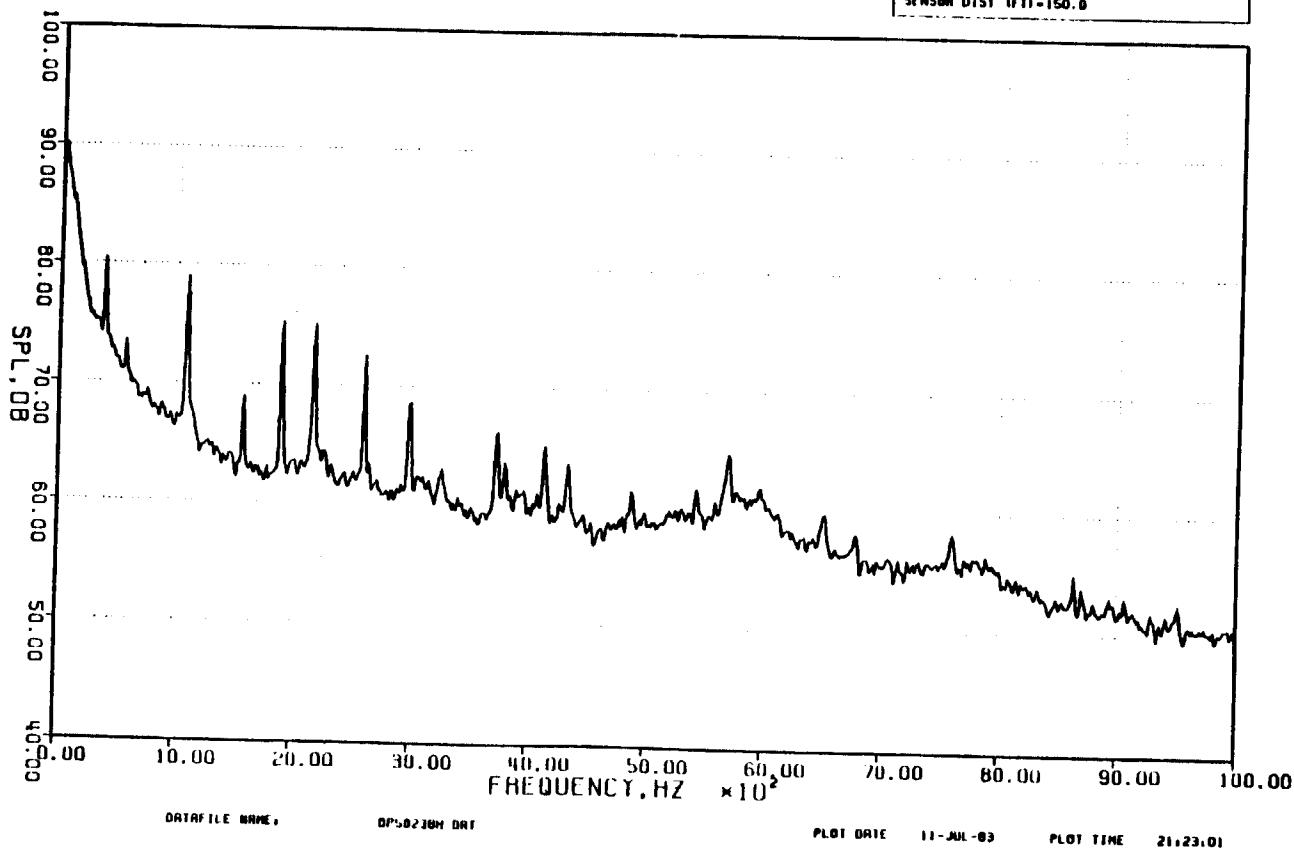


## Appendix 9.2.2.o

## AVERAGED SPECTRUM

150 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2037 RPM, CORE = 11250 RPM

RUN NO.	-8
POINT NO.	-238
BPF	-1000
NO. OF BLADES	-32
TEMP DHT 1 DEG.F	-65.0
TEMP DHT 2 DEG.F	-56.5
BEMO PRESS 1" INCH	-10.50
BLADE SIZE 1" INCH	-2048
SIMP. RATE (HZ)	-25.000
A/D FILTER (HZ)	-10.000
MEAS. TIME (SEC.)	-0
AVG. PER	-100
MINIM(DTM 407)	-13
MINIM(1,MMMI)	-13
SENSOR PS1/VOLT	-0.0016
SENSOR GRIN (DB)	-10
SENSOR CH1B RMS	-0.91
SENSOR CH1N	-124
SENSOR DIST (FT)	-150.0



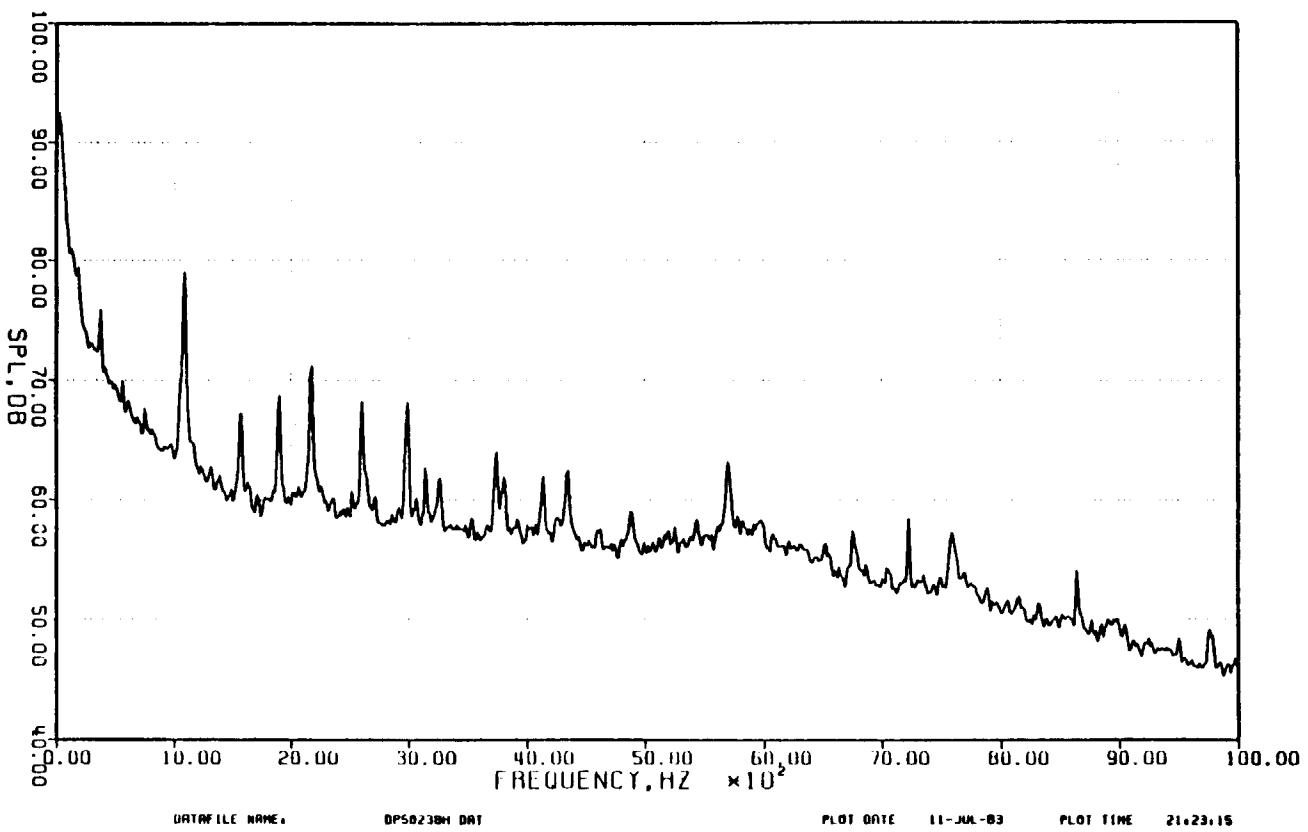
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Appendix 9.2.2.p

AVERAGED SPECTRUM

160 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE ID , DATE: 8-JUN-83  
TAPE: E315 , 30 IPS  
FAN = 2037 RPM, CORE = 11250 RPM

RUN NO.	-8
POINT NO.	-238
BPF	-1086
NO. OF BLADES	-32
BLADE DIA (INCH)	-5.0
TEMP DIA (DEG F)	-50.0
BLADE PRESS (LBS)	-29.50
BLADE SIZE (INCH)	-214.0
SUPER RATE (KHZ)	-21.500
ANTI TILT (KHZ)	-10.000
REFRESH TIME (SEC)	-8
REFRESH COUNT	-100
DIMINISH TH (HZ)	-13
WINDOW (HZ) (NORM)	-1
SENSOR PSV(VOL)	-0.0016
SENSOR GAIN (DB)	-10
SENSOR CALIB (DB)	-0.88
SENSOR LIN REF	-1.7
SENSOR DIST (FT)	-150.0

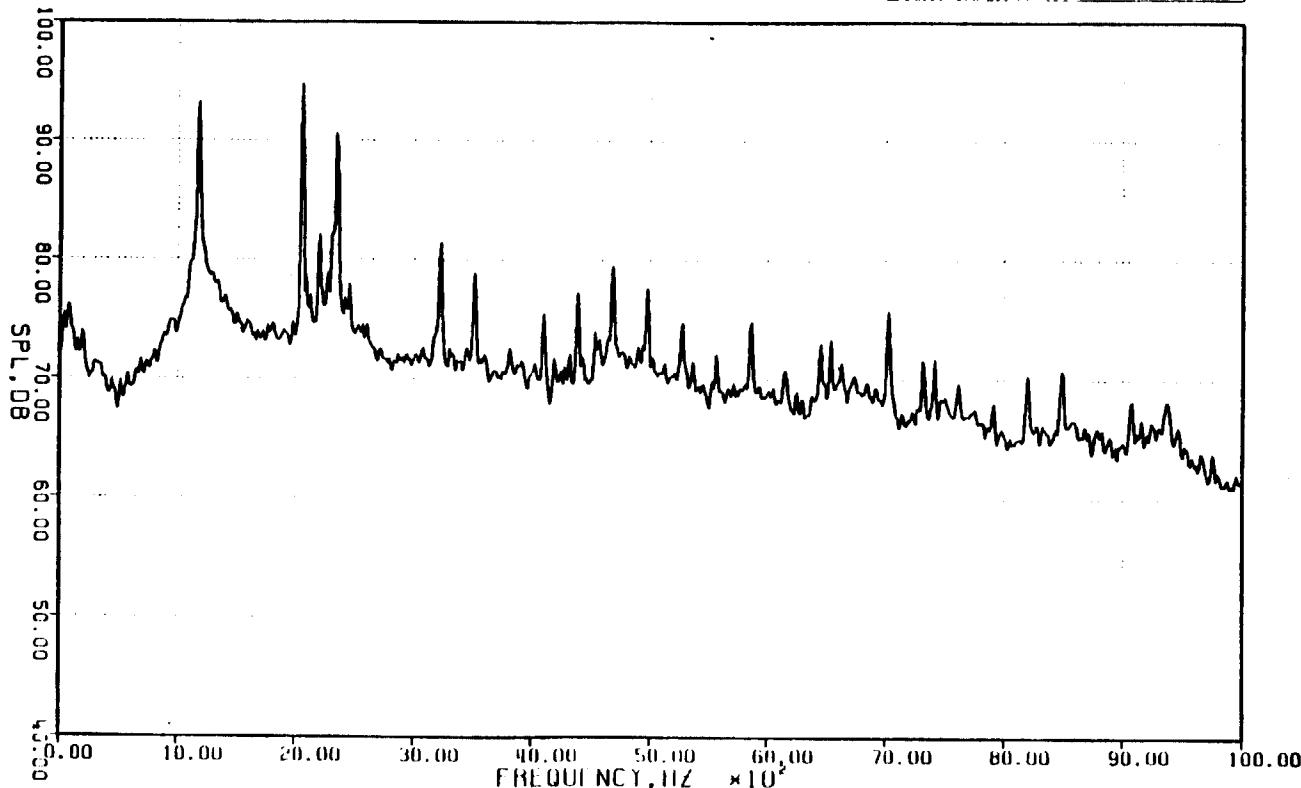


## Appendix 9.2.3.a

## AVERAGED SPECTRUM

10 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	8
POINT NO.	230
DPF	1168
NO. OF BLADES	32
TEMP DRY (DEG.F)	85.8
TEMP WET (DEG.F)	85.8
BARO PRESS (PSI)	29.58
BARO TEMP (DEG.F)	204.8
SHEAR RATE (KHZ)	25.500
R/H (1111) (KHZ)	10.000
RELAXATION TIME (SEC)	0
WIND DIR:	100
WIND SPEED (INCHES)	0
MINIMUM (1-HMMIN)	1
SENSOR PSV/VOLT	0.0016
SENSOR GAIN (DB)	-10
SENSOR GAIN (DB RMS)	0.90
SENSOR LM REF	-120
SENSOR DIST (FT)	150.0



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DATASITE NAME:

DP10239H.DAT

PLOT DATE 12-JUL-83

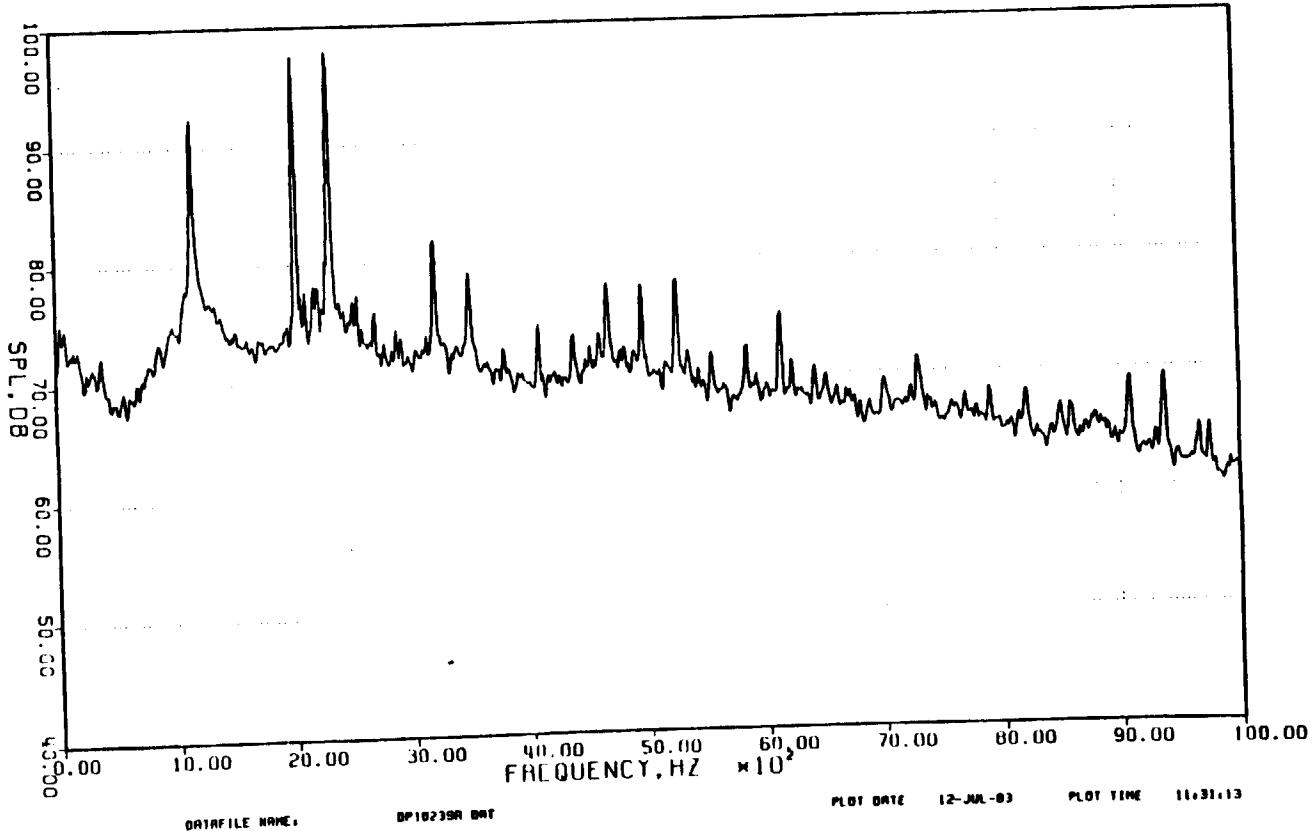
PLOT TIME 11:30:59

Appendix 9.2.3.b

AVERAGED SPECTRUM

20 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	9
POINT NO.	129
BPF OF BLADES	1150
BLADE SPACING	32
TEMP DAT (deg.F)	65.0
TEMP MET (deg.F)	54.5
BLADE PRESS (TNG)	29.50
BLADE SPAN (in.)	2048
SUMP RATE (in/s)	20.000
FAN/BLADE RATIO	0.000
PLOTTING TIME (SEC)	8
DATA HOURS	100
NUMBER OF HOURS	13
NUMBER OF HARMONICS	1
SENSOR 01 VOL1	0.0016
SENSOR 01 GAIN	1.0
SENSOR 01 RMS	0.83
SENSOR 01 L1 P/P	1.24
SENSOR 01 ST (F1)	150.0



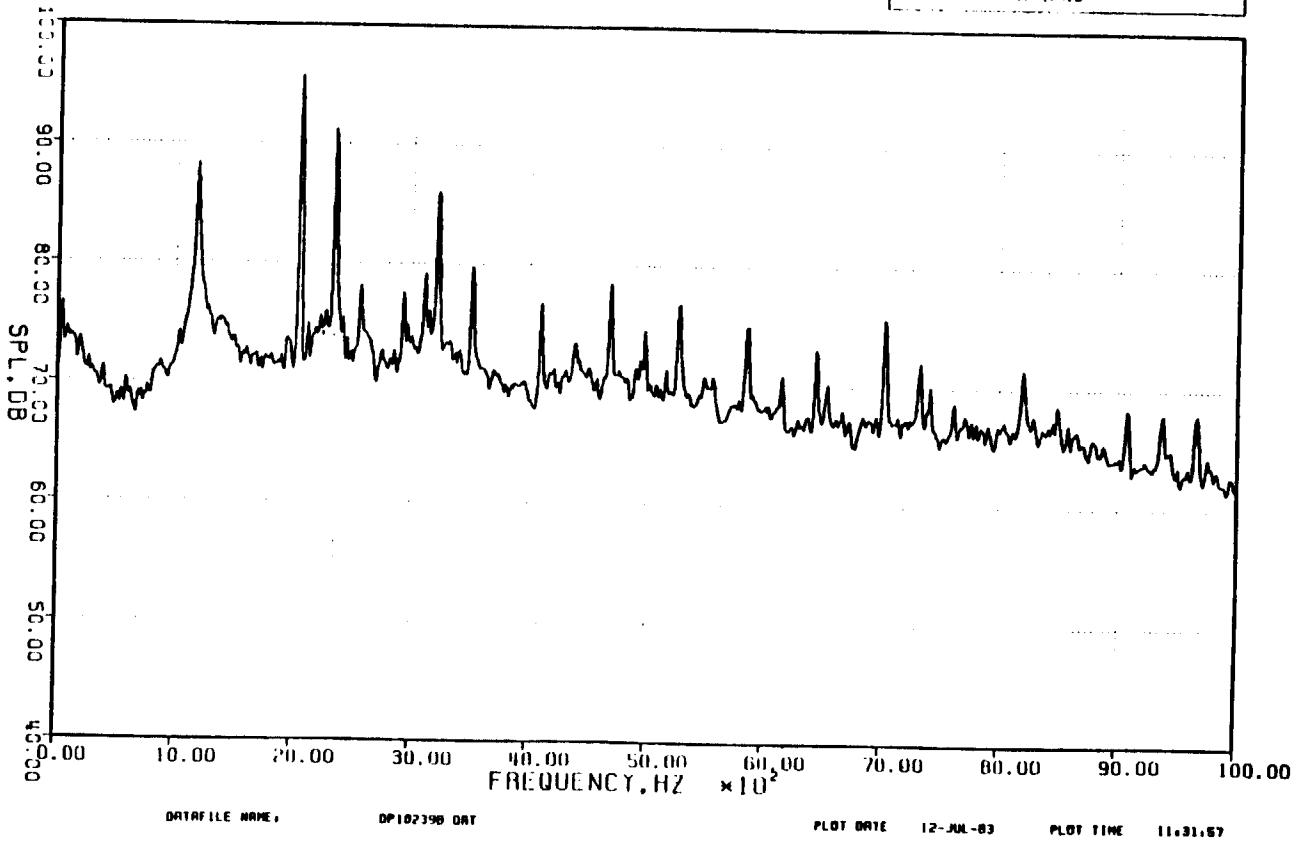
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## Appendix 9.2.3.c

## AVERAGED SPECTRUM

30 DEG G/P  
 E CURED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	=8
POINT NO.	=279
DPF	=1150
NO. OF BLADES	=32
TEMP DAY (DEG.F)	=65.0
TEMP WET (DEG.F)	=54.5
ATM PRESS (INHG)	=29.50
BLADE SPAN (INCH)	=24.00
SAMP RATE (HZ)	=25.00
A/D FILTER (HZ)	=10.00
ATTENUATE (DB)	=0
AVG NPTS	=100
BINN WIDTH (HZ)	=1
SENSOR CNT (AVER)	=1
SENSOR CNT (RMS)	=0.0016
SENSOR CNT (INT)	=0.40
SENSOR CNT (INT)	=1.74
SENSOR DIST (FT)	=150.0



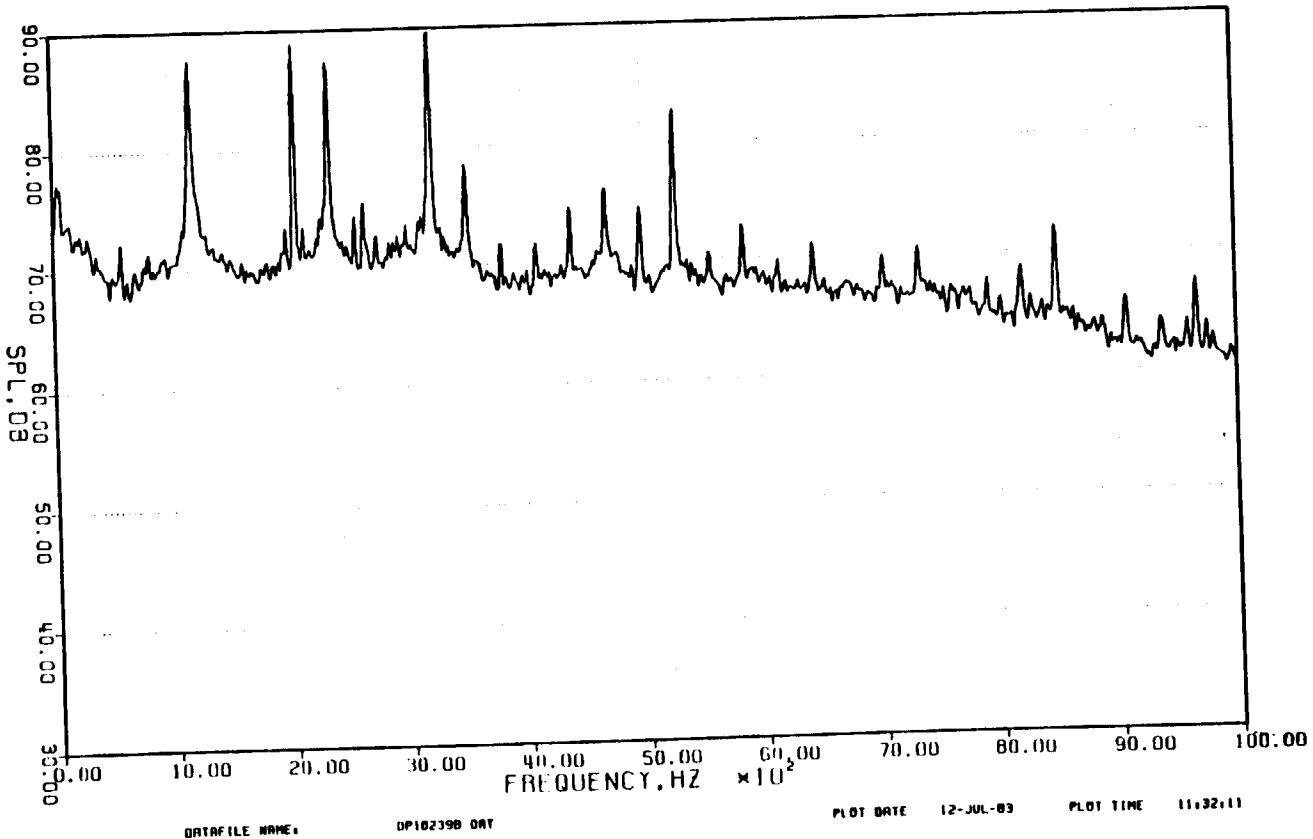
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Appendix 9.2.3.d

AVERAGED SPECTRUM

40 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY INFLATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2190 RPM, COHE = 11480 RPM

RUN NO.	-8
POINT NO.	-239
NO. OF BLADES	-32
NO. OF BLADES	-32
TEMP DRY (DEG.F)	-65.0
TEMP WET (DEG.F)	-59.5
BINN PRESS (PSI)	-29.50
BLDG K SIZE	-0.040
SITE ALTITUDE (M)	-21.610
FILTER LENGTH (L)	-10.000
REC TIME (SEC)	-6
AXIAL RES	-100
NONRADIAL RES	-13
MINIMUM (100%)	-0.0016
SEN-ON PS1/VIB1	-10
SEN-ON CAL1B RMS	-0.93
SEN-ON CAL1B RMS	-1.79
SEN-ON D151 (F1)	-150.0



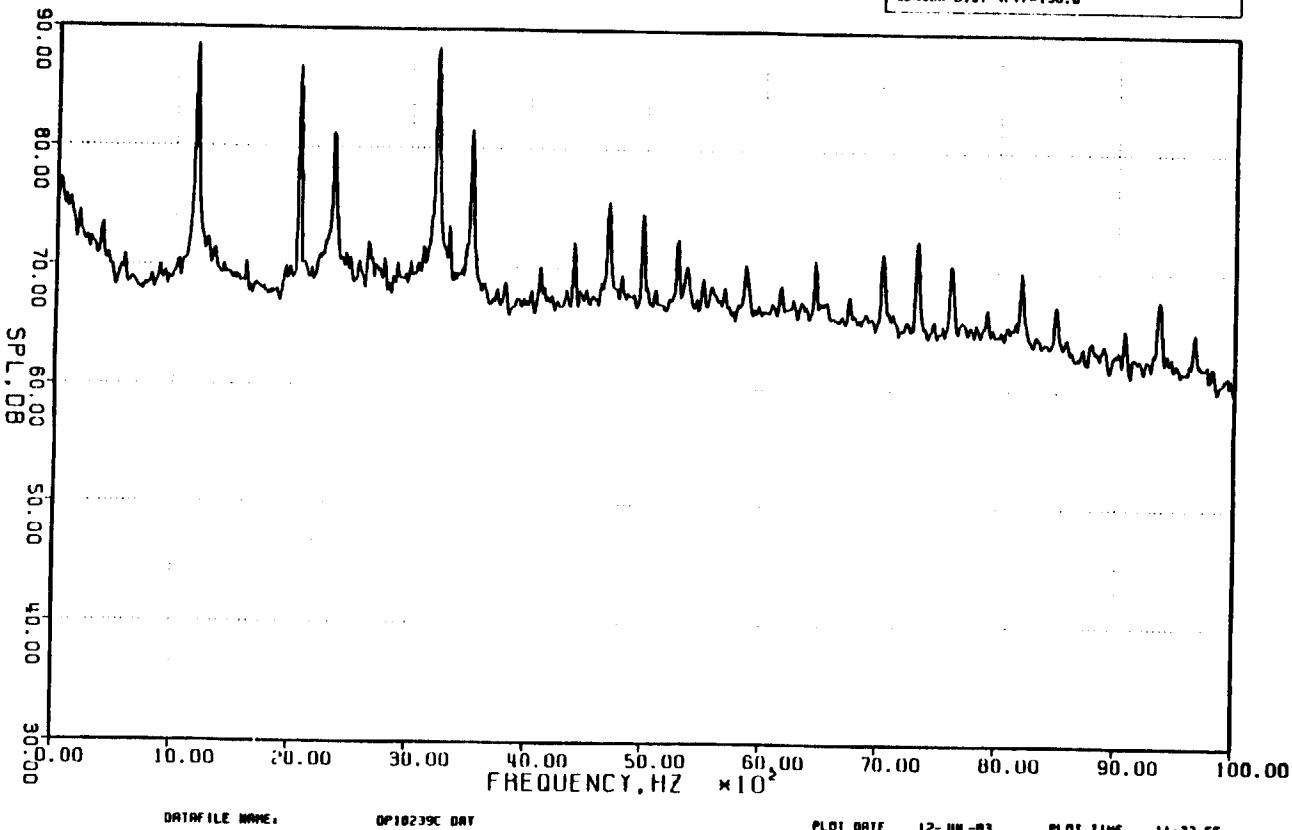
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## Appendix 9.2.3.e

## AVERAGED SPECTRUM

50 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2190 RPM. CORE = 11480 RPM

RUN NO.	8
POINT NO.	220
BPF	1150
NO. OF BLINDS	12
TEMP DAT (DEG.F)	65.0
TEMP WET (DEG.F)	58.5
WIND DIR (deg.)	24.50
BLIND PERIOD (SEC)	0.0004
SIMP PHASE (HZ)	25.000
A/D FILTER (HZ)	10.000
RECORD TIME (SEC)	0
AVERAGES	100
DYNAMIC (HZ)	13
LOW CUT (HZ)	0
SENSOR OUT/VOLT	0.0005
SENSOR LAMP (DB)	-20
SENSOR CARB (RMS)	0.93
SENSOR CAR REF	-124
SENSOR DIST (FT)	150.0



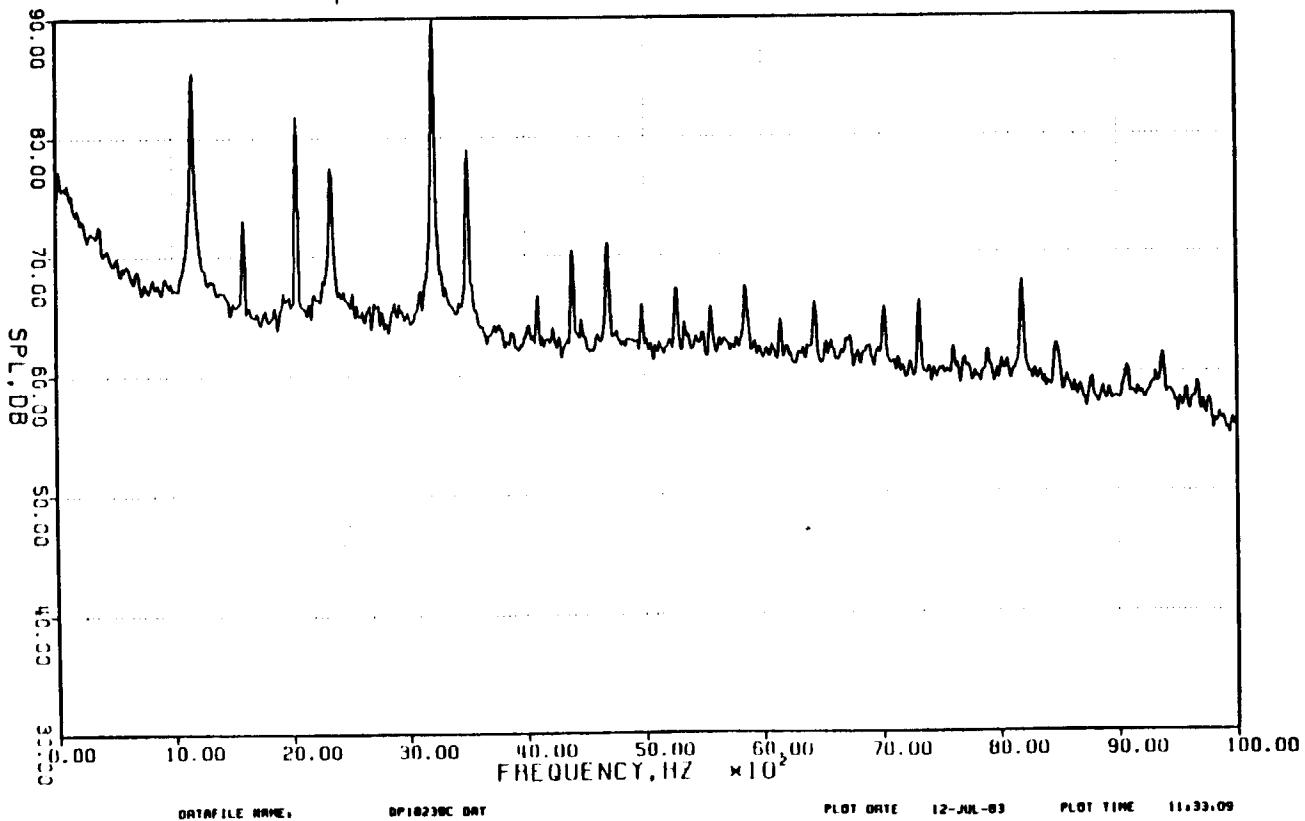
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Appendix 9.2.3.f

AVERAGED SPECTRUM

60 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-03  
 TAPE: E315 . 30 IPS  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	9
POINT NO.	238
BPF	1150
NO. OF BLODES	32
TEMP DATA (DEG.F)	65.0
TEMP WIRE (DEG.F)	59.5
BANDWIDTH (HZ)	29.50
BLOCK SIZE	2700
SAMP RATE (KHZ)	25.600
D/A (1) TEMP (KHZ)	10.000
REF DRO TIME (SEC)	8
AVE RATE	100
MIN RATE (HZ)	13
MAX RATE (HZ)	1
SEN.S/D PST/VOLT	0.0005
SEN.S/D GAIN (DB)	20
SEN.S/D THRS (DB)	-0.91
SEN.S/D LVL (DB)	-1.4
SEN.S/D DIST (FT)	150.0



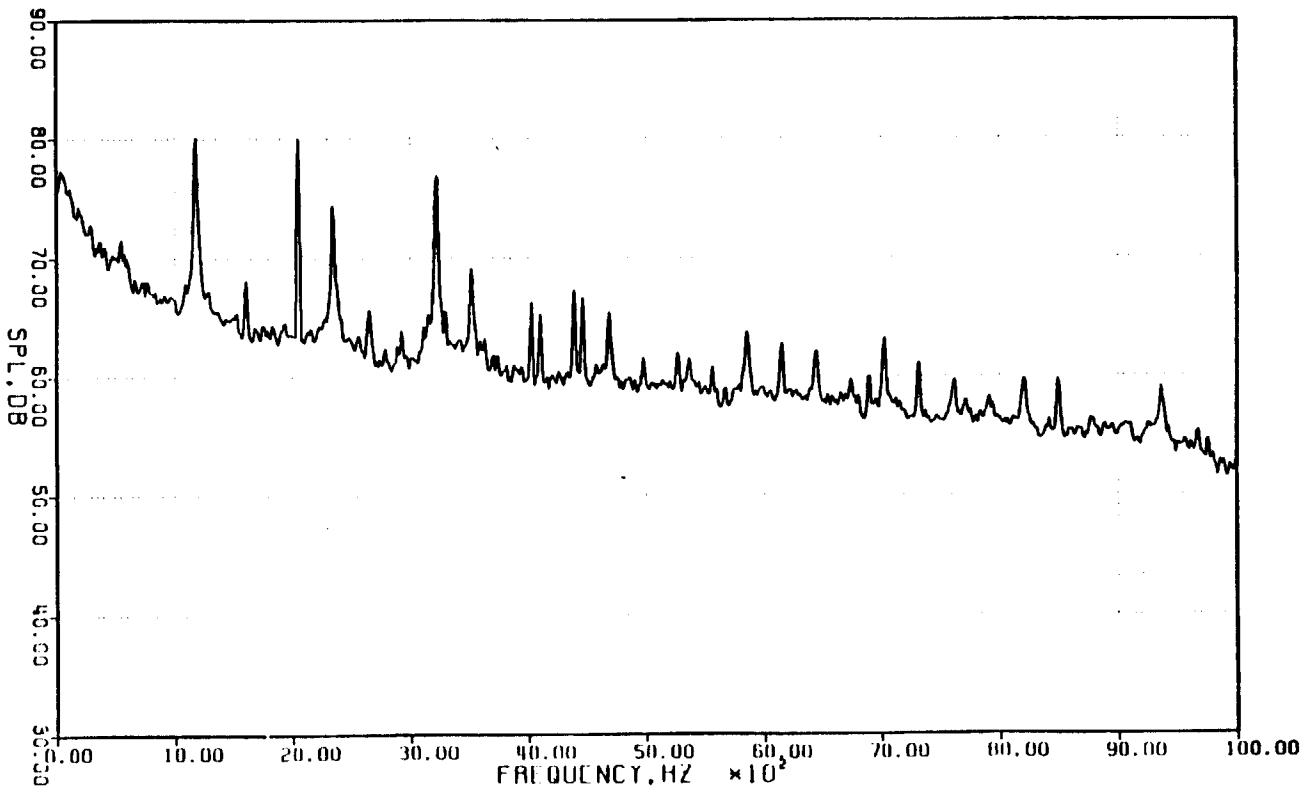
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## Appendix 9.2.3.g

## AVERAGED SPECTRUM

70 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FHN = 2190 RPM, CORE = 11480 RPM

RUN NO.	-8
POINT NO.	-239
BPF	-1160
NO. OF AVERAGES	-32
TEMP IN AIR (DEG.F)	-65.0
TEMP IN CORE (DEG.F)	-65.5
BAND PW 5% (HZ)	-20.50
BURN K	-177
SMPD HWH (HZ)	-25.000
A/D TIME (HZ)	-10.000
RECORDER TIME (SEC)	-8
AVLIM (A)	-100
WINDING 11 (HZ)	-13
WINDING 11 (MM/M)	-1
SEN-001 PSL/WIN 1	-0.0005
SEN-001 LWIN (HRS)	-20
SEN-001 CH 10 (HRS)	-0.92
SEN-001 CHL REF	-1.4
SEN-001 DIST (FT)	-150.0



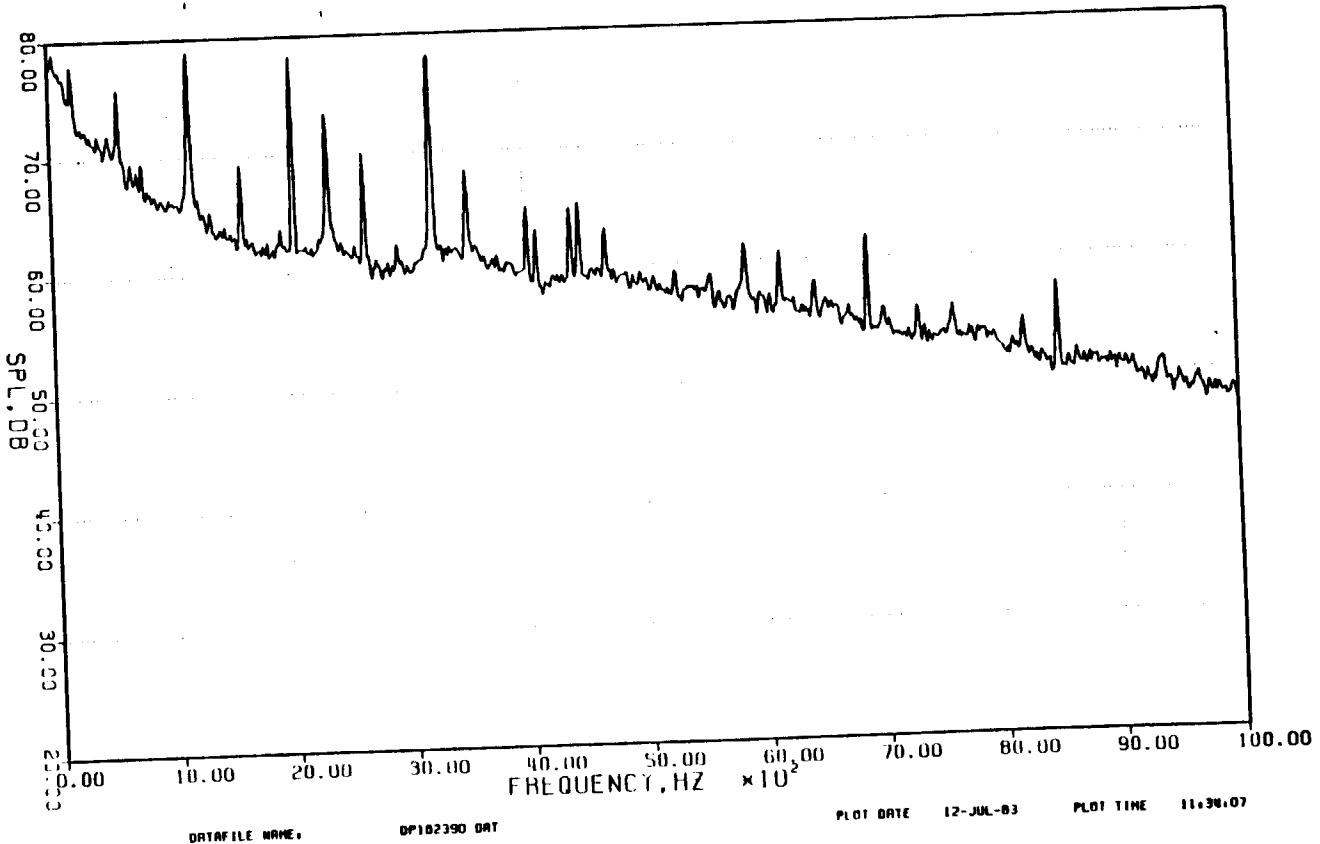
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Appendix 9.2.3.h

AVERAGED SPECTRUM

80 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2190 RPM. CORE = 11480 RPM

RUN NO.	-230
POINT NO.	-1150
BPF	-152
NO. OF BLADES	-65.0
TEMP DRY (DEG.F)	-54.6
TEMP WET (DEG.F)	-59.50
BINAR PRESS (T-HG)	-21400
BLADE SIZE	-25.600
SIMP RATIO (HWHM)	-0.000
R/P (1.111111111111111)	-0
RELATIVE TIME (SEC)	-100
PIN HOLES	-13
BINAR WIDTH (HZ)	-1
MIN/MAX (HWHM)	-1
SEN-SOR PSF/VOLT	-0.0005
SEN-SOR GAIN (DB)	-20
SEN-SOR LINE THRES	-0.90
SEN-SOR LINE TH1	-1.24
SEN-SOR D151 TH1	-150.0
SEN-SOR D151 TH2	-150.0



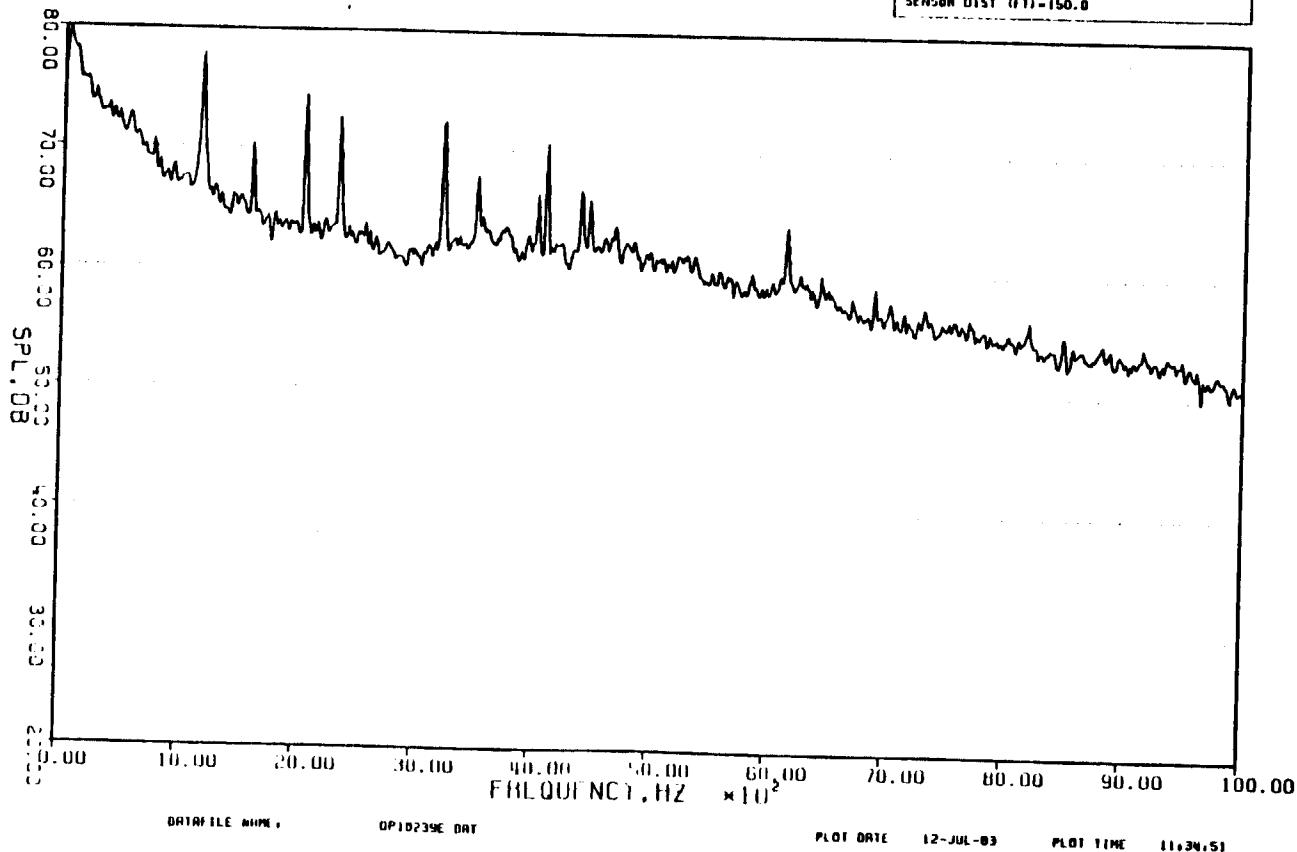
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## Appendix 9.2.3.1

## AVERAGED SPECTRUM

90 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8 JUN-83  
 TAPE: E315 . 30 IPM  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	-8
POINT NO.	-239
WV	-160°
NO. OF BLADES	-3
TEMP DHT (DEG.F)	-65.0
TEMP WLT (DEG.F)	-54.5
BINNA PMS5 (*NG)	-29.50
BINNA SIZE	-2048
SITE 4D (DEG.NE)	-75.600
ROTATION TIME (SEC)	-10.000
REV RATIO	-100
ROTOMIDLE REV	-13
MINIMUM (1-BINBIN)	-1
MINIMUM PCT/VOL	-0.0005
SENSOR COUNT (DB)	-20
SENSOR CNT (DBM)	-93
SENSOR CNT (dB)	-12
SENSOR DIST (FT)	-150.0



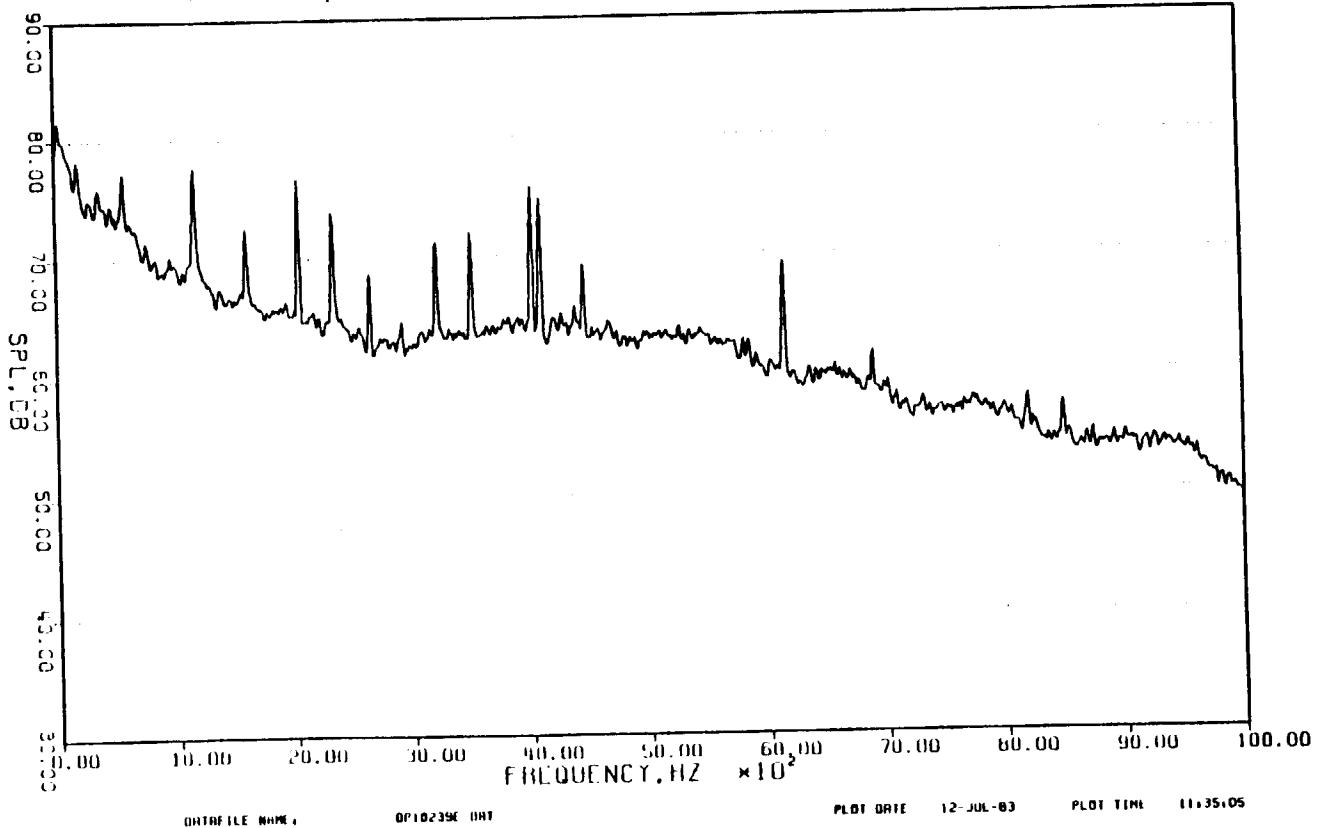
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Appendix 9.2.3.j

AVERAGED SPECTRUM

100 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY THREADED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 . 30 RPM  
 FAN = 2190 RPM, COHE = 11480 RPM

RUN NO.	-239 -
POINT NO.	-1168 -
SPF	-32 -
NO. OF BLADES	-32 -
TEMP DRY (DEG.F)	-65.0 -
TEMP WET (DEG.F)	-54.5 -
BINNO PMS5 (MG)	-28.50 -
BLAD RATIO (MM)	-1.00 -
BLAD ANGLE (DEG)	-25.00 -
G/R (LITERS/KW/H)	-10.000 -
BLAD TIME (SEC)	-8 -
BLAD HOLE	-100 -
BLAD WIDTH (MM)	-13 -
BLAD TILT (DEG)	-1 -
SPEC. ON PS1/VW1	-0.0005 -
SPEC. ON GRATE (MM)	-20 -
SPEC. ON CRASH (MM)	-0.95 -
SPEC. ON CRASH (MM)	-1.74 -
SPEC. ON DIST (MM)	-150.0 -



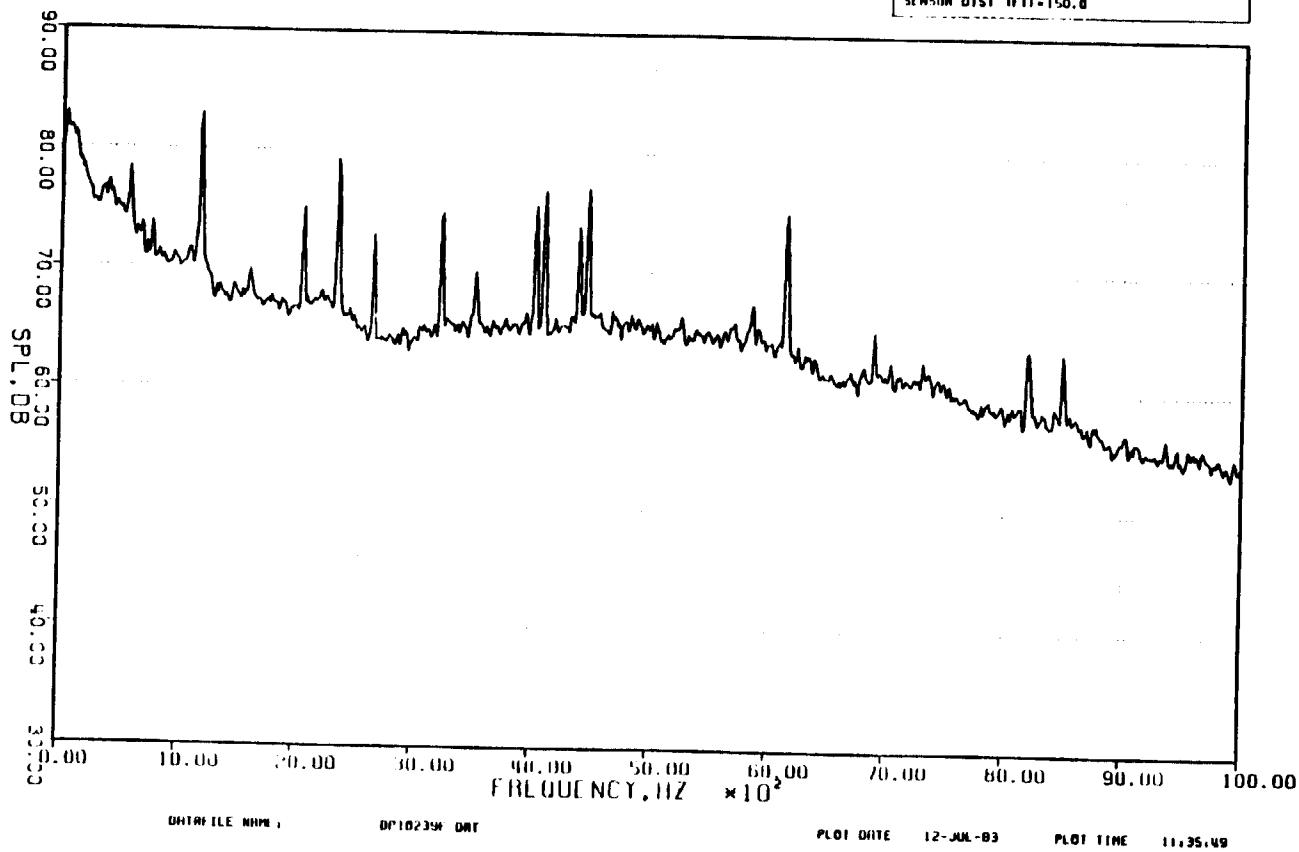
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## Appendix 9.2.3.k

## AVERAGED SPECTRUM

110 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TRIBUTED  
 SITE 40 . DATE: 8-JUN 83  
 TAPE: E315 , 30 IPS  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	+9
POINT NO.	+239
BPF	+1160
NO. OF BLOCKS	+32
NO. OF DAY	+65.0
TEMP MAT (DEG.F)	+65.5
BLIND PRESSURE (PSI)	+28.50
BLIND SIZE	+204.8
SHEAR RATE (IN/H)	+0.600
BLD. FILTER (INCH)	+10.000
BLD. TIME (SEC)	+4
RECORDS	+100
RECORDS/HOUR	+1
SHEAR STRESS (PSI)	+0.0005
SHEAR STRAIN (RAD)	+20
SHEAR STRAIN RMS	+0.93
BLIND LMT. (IN)	+1.74
SENSOR DIST (FT)	+50.0



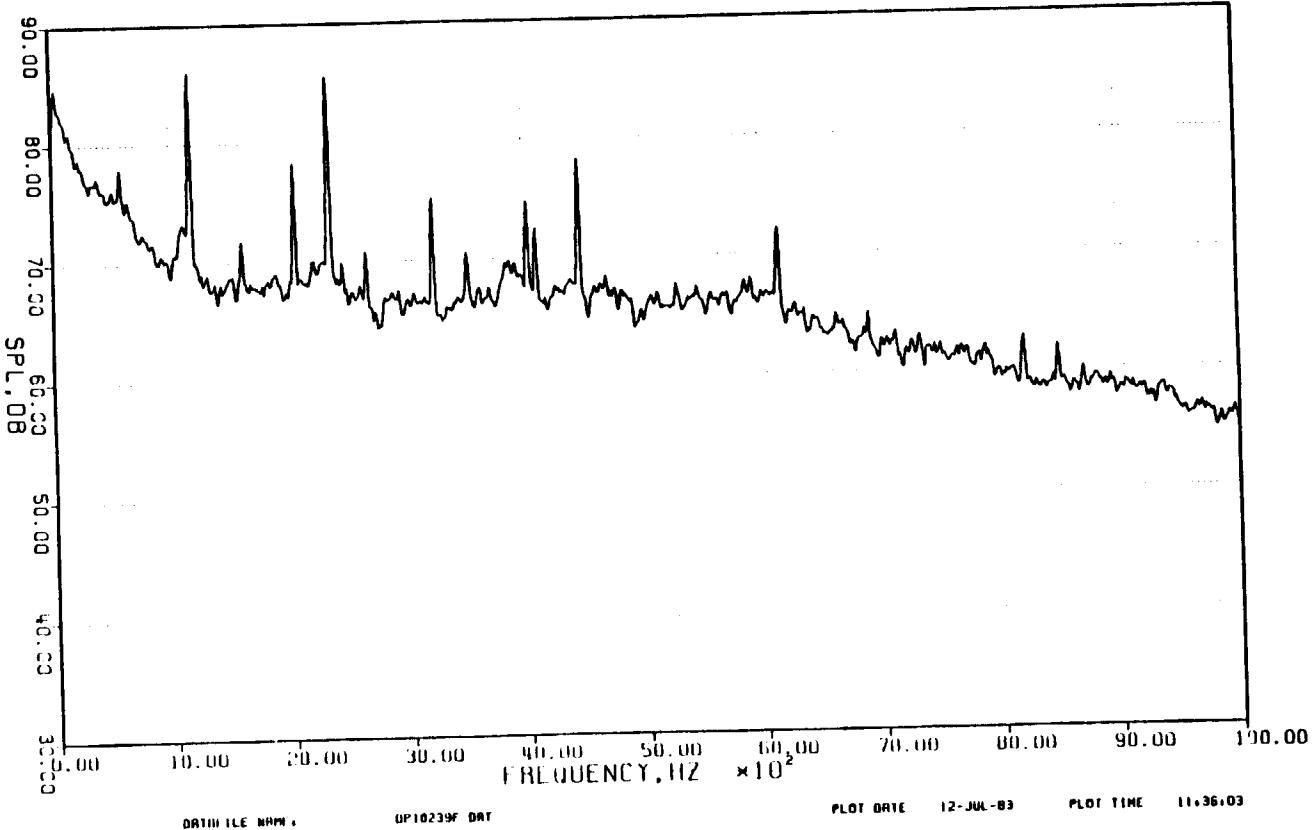
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### Appendix 9.2.3.1

#### AVERAGED SPECTRUM

120 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D , DATE: 8-JUN-83  
TAPE: E315 . 30 IPS  
FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	= 9
POINT NO.	= 239
SPF	= 1160
NO. OF BLADES	= 22
TOP INCL (DEG)	= 24.0
TOP OUT (DEG)	= 44.5
BLADE PITCH (°)	= 21.50
BLADE SPAN	= 214.00
SHARP RATE (IN/HZ)	= 21.500
A/V TIME (SEC)	= 10.000
HEADING (DEG)	= 110
MINIMUM (IN)	= 13
MAXIMUM (IN-HMM)	= 1
SENSOR PSV/VOLT	= 0.0016
SENSOR GAIN (DB)	= 10
SENSOR CAR (HRS)	= 92
SENSOR CAR (H)	= 1.4
SENSOR DIST (FT)	= 150.0



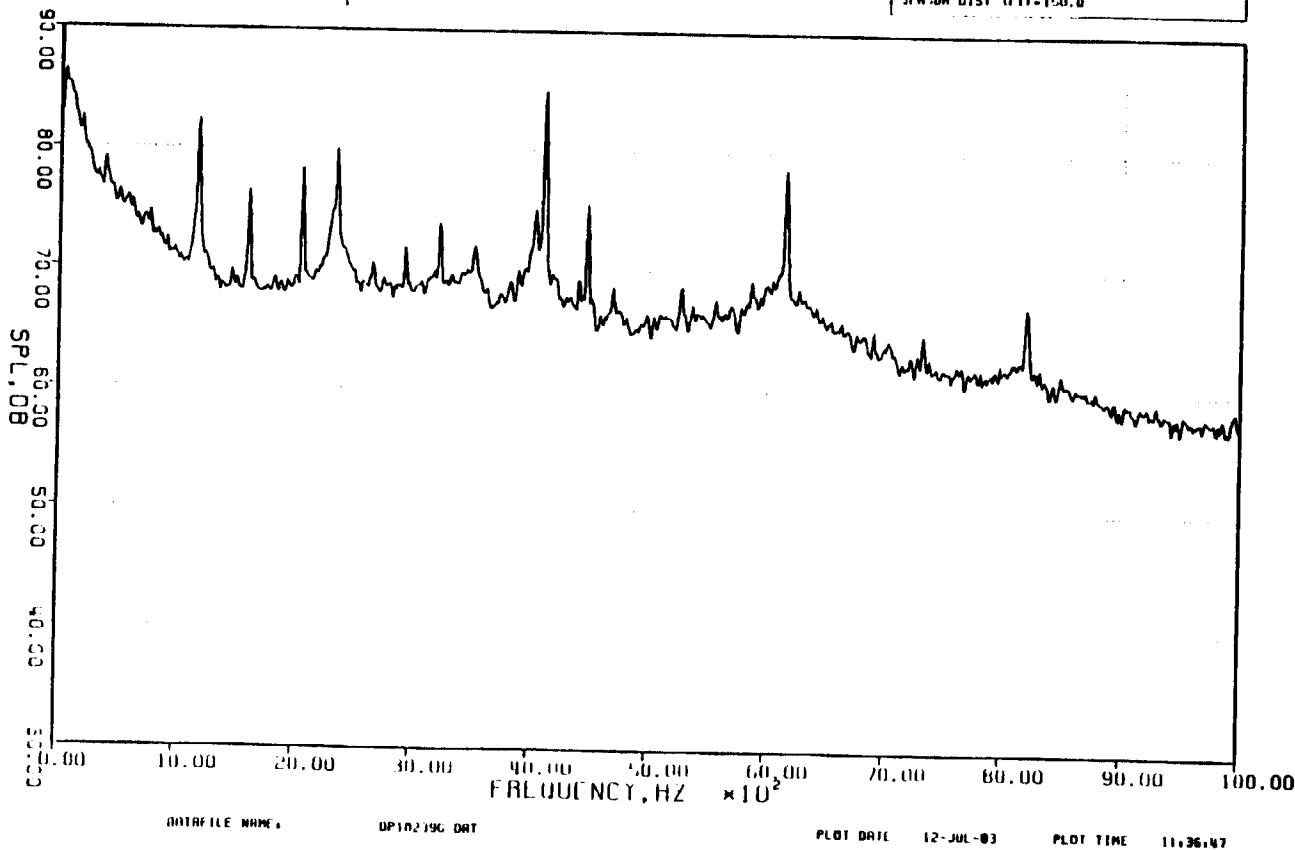
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## Appendix 9.2.3.m

## AVERAGED SPECTRUM

130 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-03  
 TYPE: E315 , 30 IPS  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	-9
POINT NO.	-239
PF	-160
NO. OF BLADES	-12
TEMP DRY (DEG C/F)	-45.0
TEMP WET (DEG C/F)	-54.5
BINH PH SS (degC)	-20.50
BINH K (-17)	-20.40
SPECIFIC HEAT (BTU/L)	-0.1000
K-1000 (BTU/HOUR)	-10.000
RELATIVE TIME (SEC)	-1.000
REL HUMID.	-100
BINHOMDT (degC)	-1.2
BINHOMDT (degK)	-1
SEN-001 PCT/WIND	-0.0016
SEN-002 PCT/WIND	-0.0
SEN-003 CNT/THRO	-0.91
SEN-004 CNT/WIND	-0.94
SEN-005 DIST (ft)	-150.0



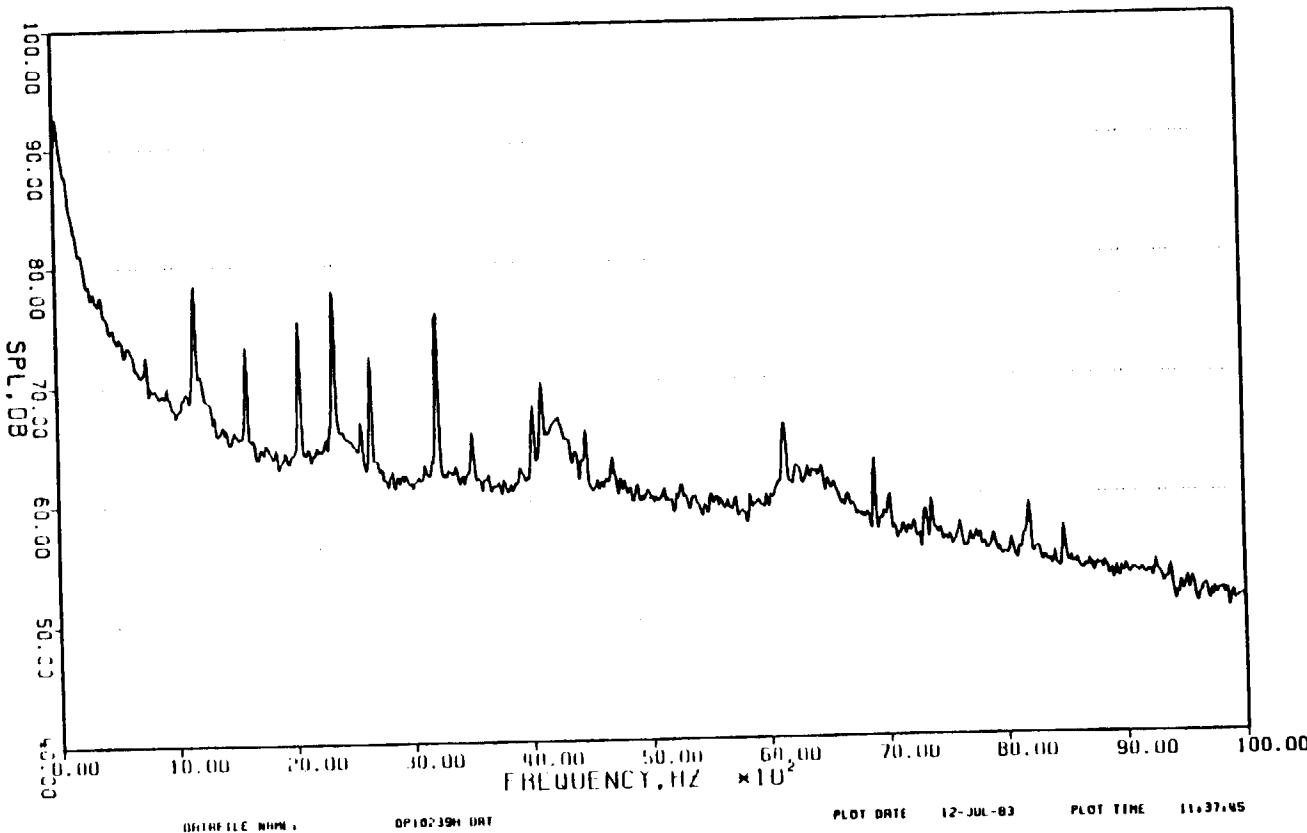
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Appendix 9.2.3.n

AVERAGED SPECTRUM

150 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2190 RPM, CONE = 11480 RPM

RUN NO.	= 9
POINT NO.	= 238
OPP.	= 1160
NO. OF BLADES	= 32
TEMP DAY 10EG.F1	= 65.0
TEMP WT 10EG.F1	= 58.5
BLADE PMS 1" HGT	= 1.50
BLADE PMS 1" WGT	= 0.48
BLADE DIA (INCH)	= 25.600
BLADE THICK (INCH)	= 0.000
BLADE TIME CYCLE	= 0
BLADE L/D	= 1.00
BURNIN/DTM	= 13
INTERPOLATION	= 0
THRESHOLD VOL	= 0.0016
SEN-DR FLTR 1000	= 10
SEN-DR FLTR 10000	= 0.91
SEN-DR FLTR 100	= 1.7
SEN-DR FLTR 0.1	= 150.0

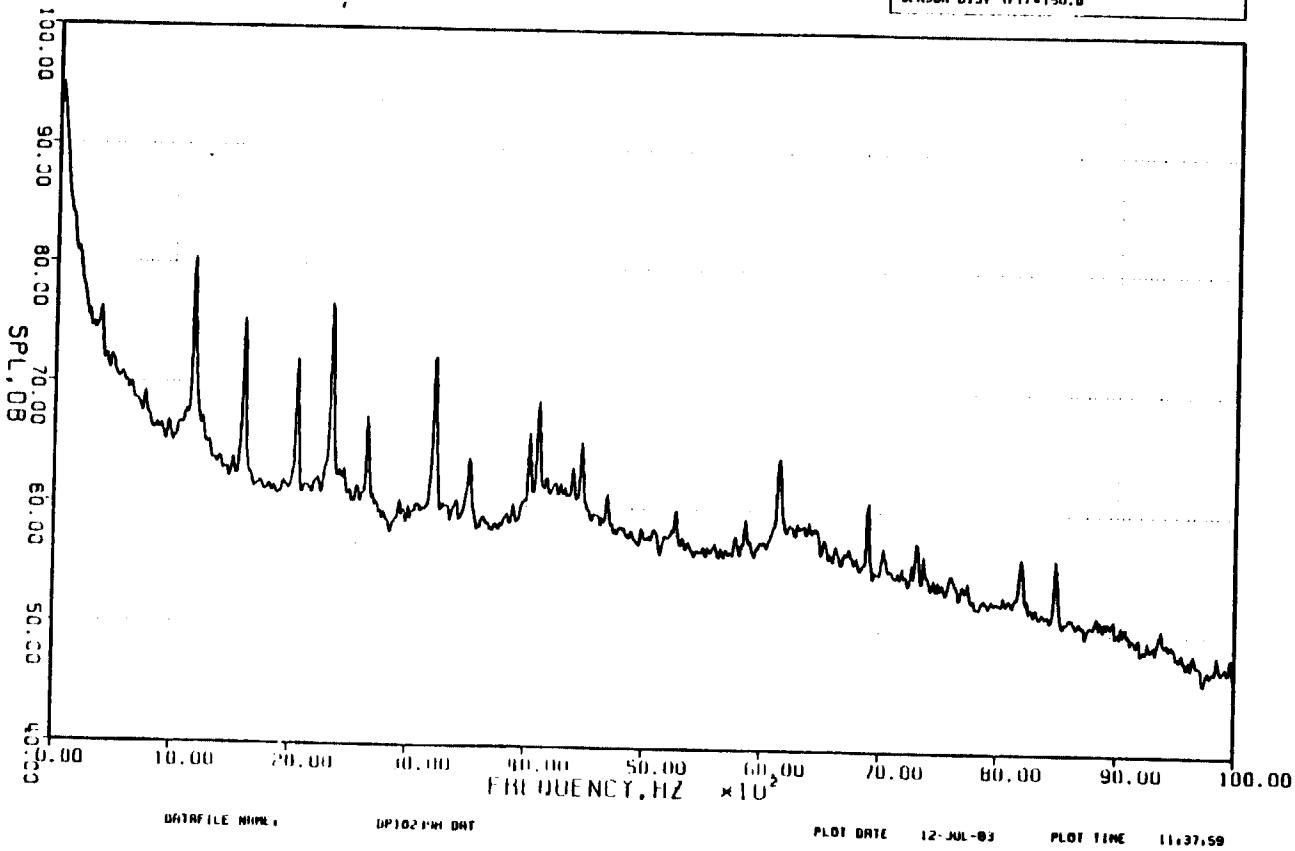


## Appendix 9.2.3.o

## AVERAGED SPECTRUM

160 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TRAIHED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	-8
POINT NO.	-239
SPD	-1160
MT. OF BLADES	-8
TEMP DAT (10EG.F)	-65.0
TEMP MET (10EG.F)	-54.5
BINDED PRESS (1"NG)	-20.50
BLADE SIZE	-2148
SIMUL. ANGLE (MM/1)	-25.000
BLADE THICKNESS	-10.000
BLADE TIME (SEC)	-
BLADE ANGLES	-100
BINNED WIDTH (MM)	-13
BINNED HGT (MM)	-1
SEN:0#PSI/VMNT	-0.0016
SEN:0#VOL/VMNT	-10
SEN:0#BLDTH/VMNT	-49
SEN:0#BLDTH/VMNT	-1%
SENSOR DIST (FT)	-150.0



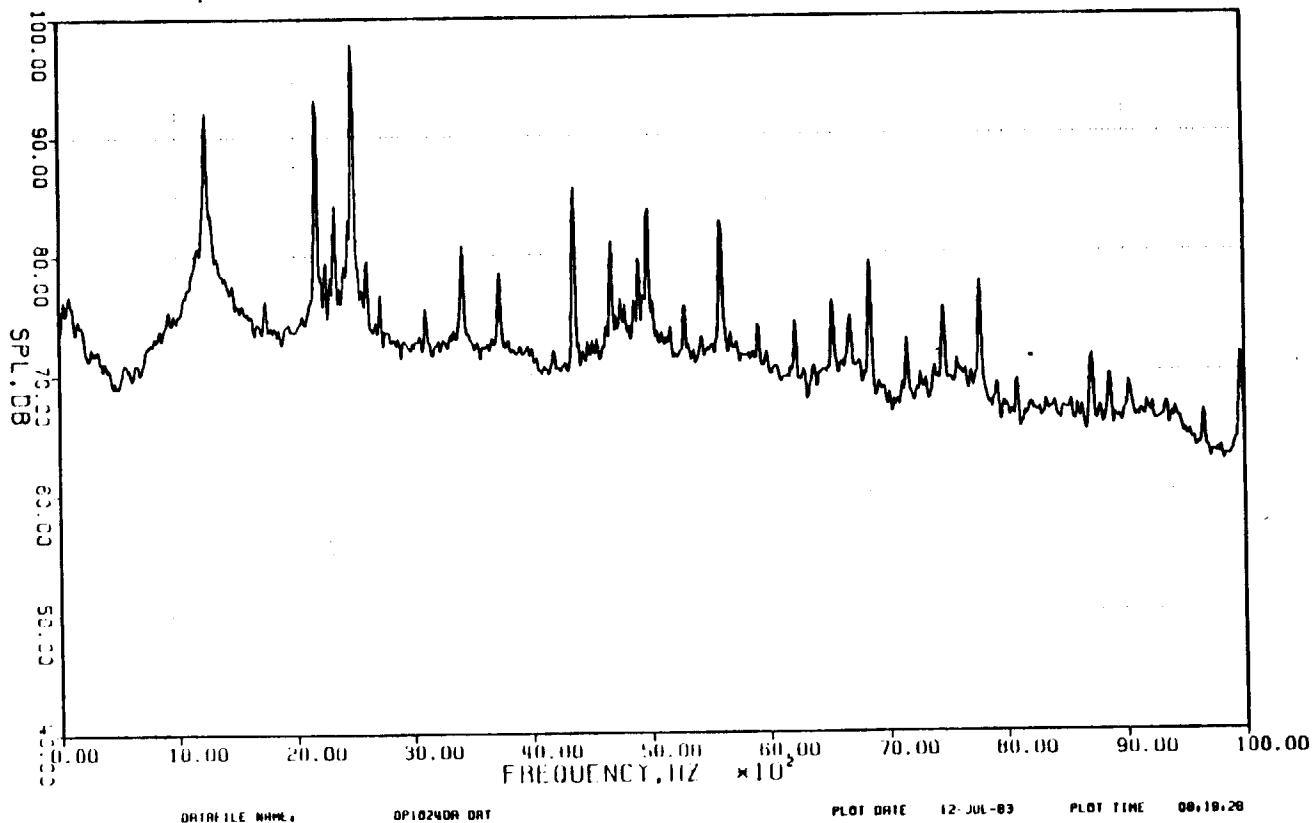
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Appendix 9.2.4.a

AVERAGED SPECTRUM

10 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8 JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2335 RPM, COHE = 11650 RPM

RUN NO.	=10
POINT NO.	=240
BPF	=1245'
NO. OF BLADES	=32
TEMP DHT (DEG.F)	=65.0
TEMP WLT (DEG.F)	=54.5
BINNO PER 55' (MG)	=29.50
BINNO PER 100' (MG)	=19.50
SPIN RATE (KHZ)	=25.500
A/H/L TIME (KHZ)	=10.000
REC'D TIME (SEC)	=0
AVLNGES	=100
BINNO WIDTH (HZ)	=13
MINIMUM (HZ)	=0
MAXIMUM (HZ)	=0.0016
SENR-CH1W (DB)-10	
SENR-CH1B (DB)-0.90	
SENR-CH1T (DB)-124	
SENR-DIST (FT)=150.0	



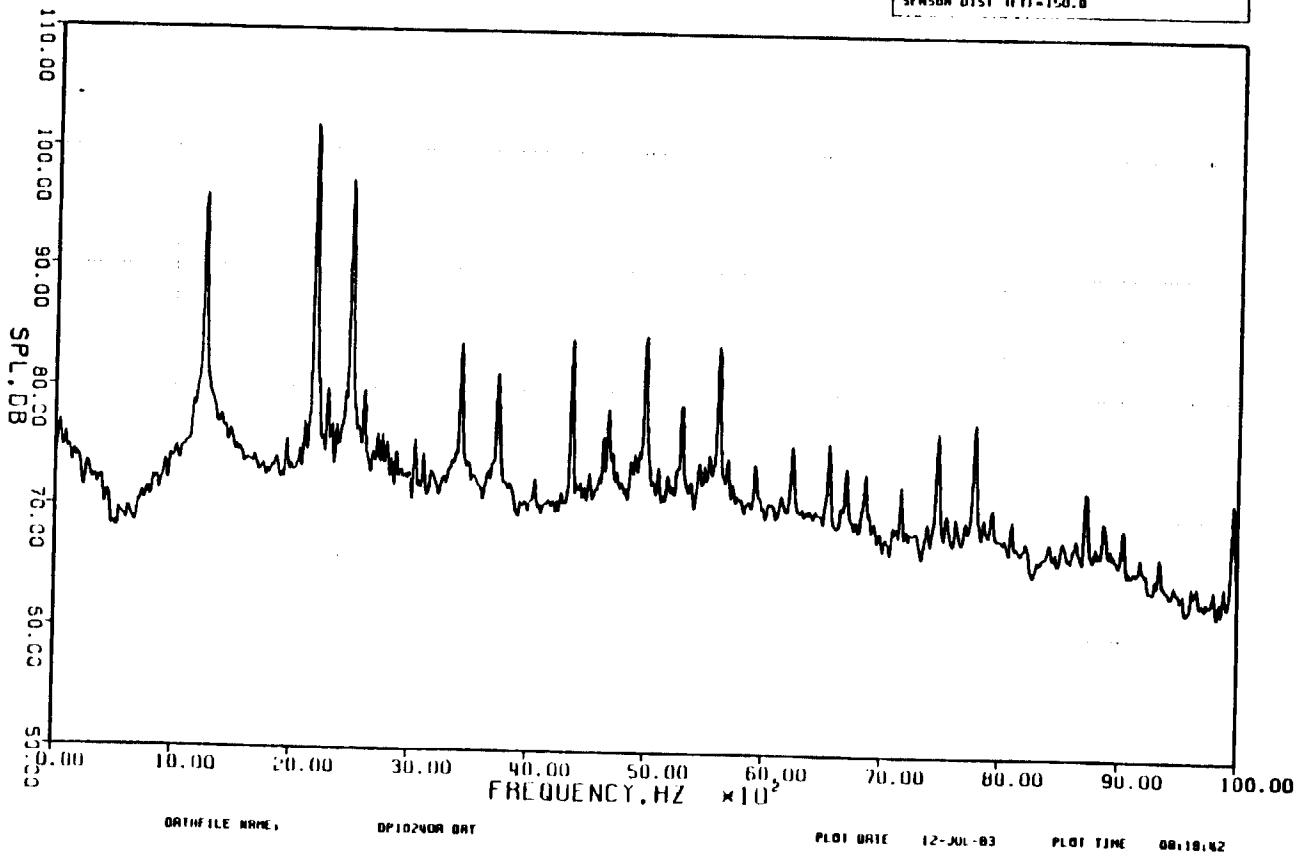
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## Appendix 9.2.4.b

## AVERAGED SPECTRUM

20 DEG G/P  
 E CUBED PEBBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TYPE: E315 , 30 IPS  
 FAN = 2335 RPM, CORE = 11650 RPM

RUN NO.	=10
POINT NO.	=240
DPF	=245
NO. OF BLADES	=32
TEMP DRY (DEG.F)	=65.0
TEMP WET (DEG.F)	=54.5
BIRD PRESS (INHG)	=29.50
DEC. 217	=2040
SIM. PUMP INH2	=25.000
A/D FILTER (HZ)	=10.000
REL. DUR. (MSECS)	=10.000
BLADES	=100
MINIMUM DIAZ	=13
MINIMUM (MM)	=1
SEN-ON (CH 1) VOLT	=-0.0016
SEN-ON (CH 10) RMS	=0.89
SEN-ON (CH 9) RMS	=1.4
SEN-ON (CH 1) DIST (FT)	=150.0



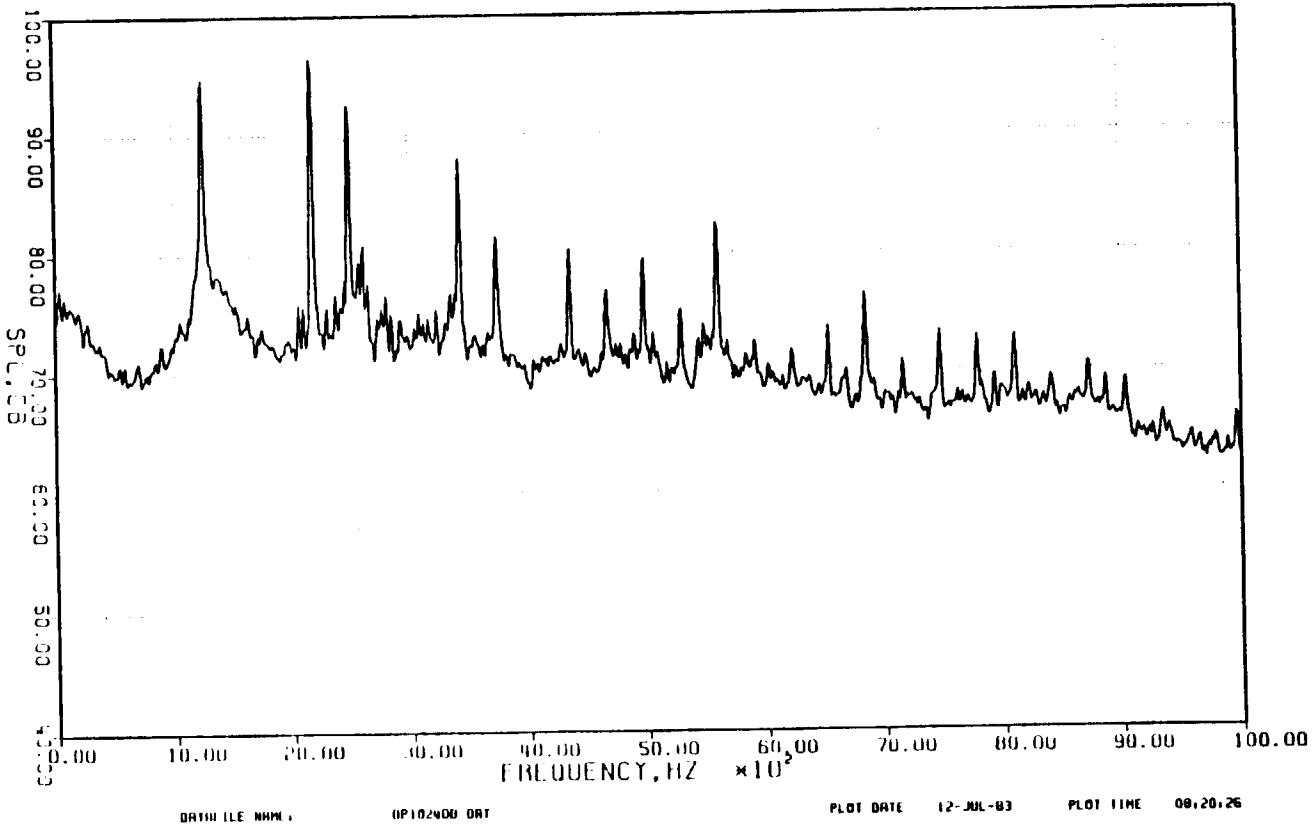
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Appendix 9.2.4.c

AVERAGED SPECTRUM

30 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2335 RPM, CORE = 11650 RPM

RUN NO.	=10
POINT NO.	=240
BPF	=1245
NO. OF BLUES	=2
TEMP WAT (DEG F)	=65.0
TEMP WAT (DEG F)	=54.5
WIND PRESS (IN Hg)	=29.50
WIND SIZE	=2048
TEMP WAT (DEG F)	=25.500
RELATIVE HUMIDITY (%)	=100.000
REL TIME (SEC)	=0
WIND DIR	=0
WIND SPD (M/S)	=1.00
WIND SPD (KTS)	=1.3
MINIMUM FREQ (HZ)	=1
SIN:ON PS1/VOL1	=0.0016
SIN:ON CH1W (DB)	=10
SIN:ON CH1B (DB)	=0.90
SIN:ON CH1 ALF	=1.24
SIN:ON DIST (FT)	=150.0



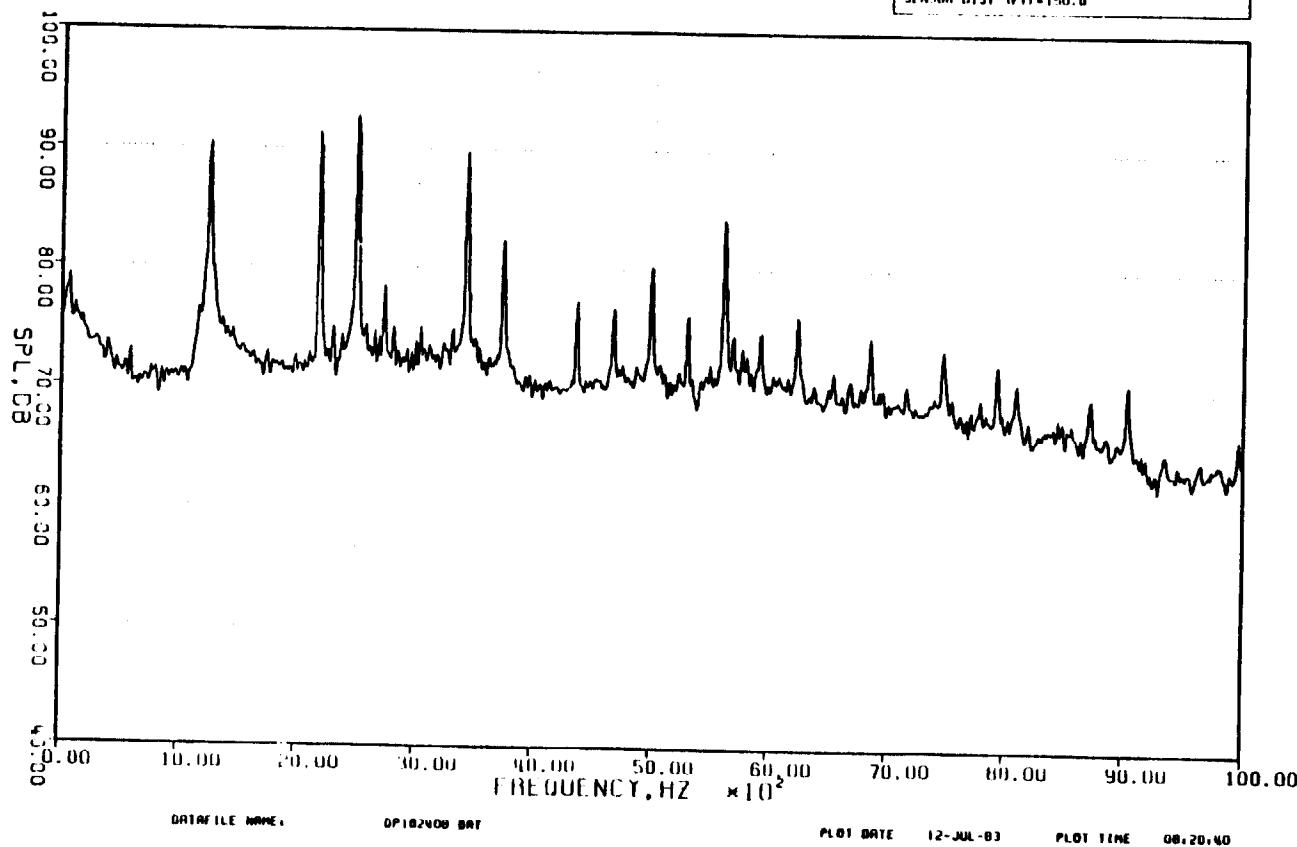
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## Appendix 9.2.4.d

## AVERAGED SPECTRUM

40 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TRATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2335 RPM, COHL = 11650 RPM

RUN NO.	= 10
POINT NO.	= 240
BPF	= 1246
NO. OF BLOCKS	= 32
TEMP DAT (DEG.F)	= 65.0
TEMP DAT (DEG.C)	= 18.3
WIND PRESS (MG)	= 1.00
BLOCK SIZE	= 2448
SAMP RATE (HZ)	= 25.000
A-D FILTER (HZ)	= 10.000
REC'D TIME (SEC)	= 0
BANDWIDTH (HZ)	= 100
NUMBER OF HARMONIC	= 13
SEN-DRV F1-HARMONIC	
SEN-DRV F1-HARMONIC	= 0.0016
SEN-DRV GAIN (DB)	= 10
SEN-DRV GAIN RMS	= 0.93
SEN-DRV GAIN PE	= 1.74
SEN-DRV DIST (FT)	= 150.0

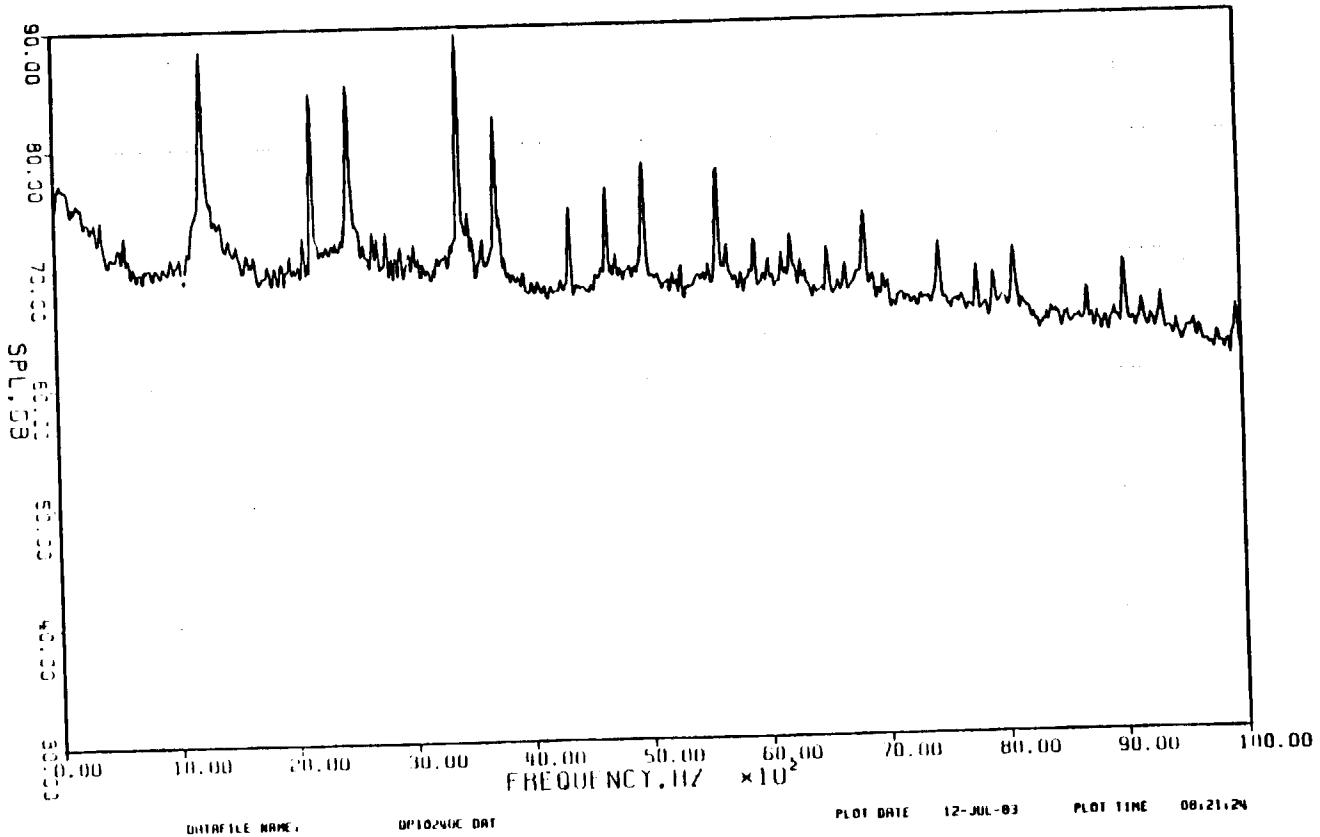


Appendix 9.2.4.e

AVERAGED SPECTRUM

50 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TRAILED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2335 RPM, CORE = 11650 RPM

RUN NO.	=10
POINT NO.	=240
BPF	=1245
NO. OF BLADES	=32
TEMP DRY INCHES	=55.0
TEMP MIST INCHES	=55.5
WIND SPEED MPH	=20.50
BLADES	=122
SUMP VOL. INCHES	=25.000
WATER LEVEL INCHES	=10.000
WIND DIRECTION	=13
MINOR WIND DIRECTION	=1
SUMP VOL/VOL	=0.0005
SUMP CAPT. VOL	=20
SUMP CAPT. RPM	=93
SUMP CAPT. INT	=124
SUMP DIST	=150.0



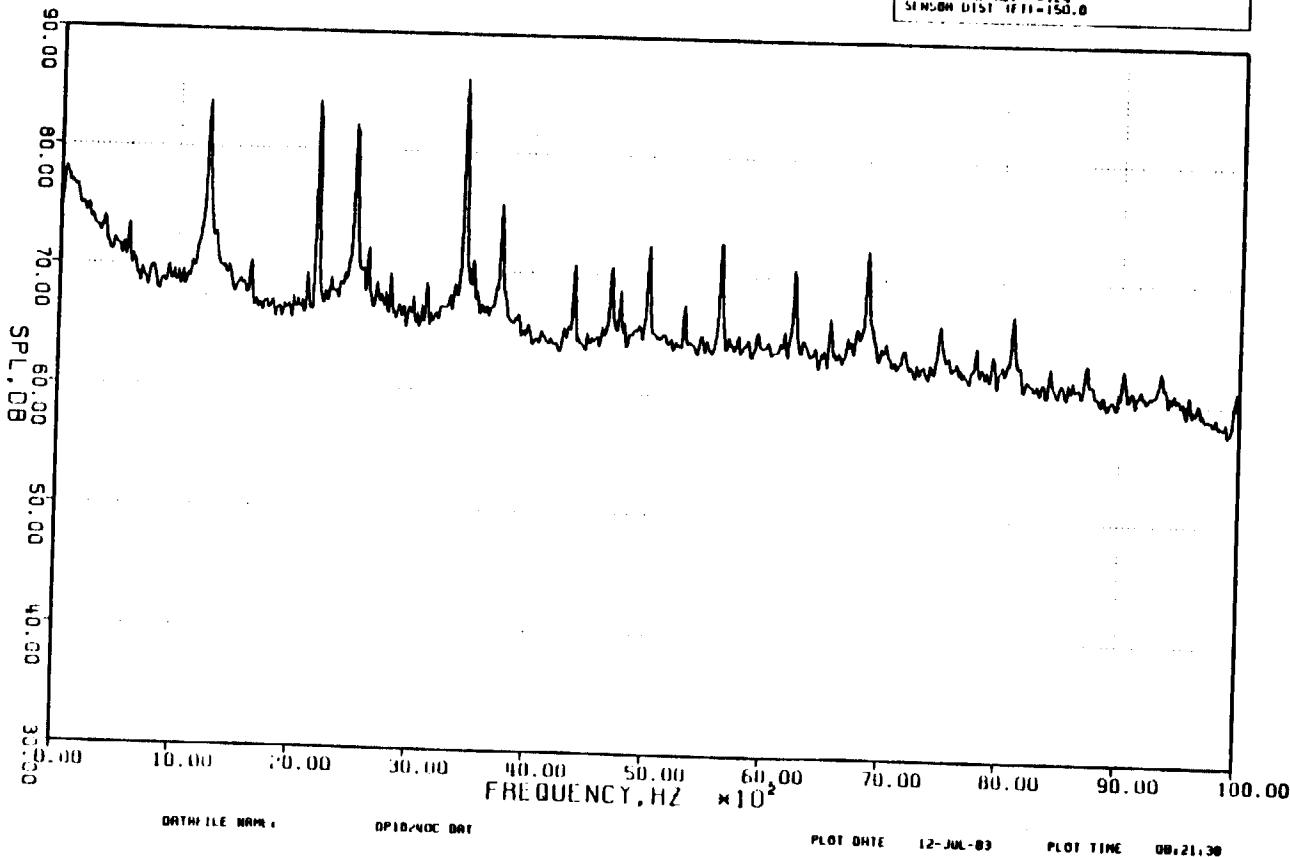
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## Appendix 9.2.4.f

## AVERAGED SPECTRUM

60 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2335 RPM, COHE = 11650 RPM

RUN NO.	=10
POINT NO.	=290
SPIN	=1246
NO. OF BLADES	=26
TEMP DAY (DEG.F)	=56.0
TEMP NIGHT (DEG.F)	=56.0
BIRD PRESS (LBS)	=29.50
BLADE SIZE (INCH)	=2048
SIMUL. RATE (INCH)	=25.500
BLADE TIME (SEC)	=10.000
BLADE RPM	=100
MINIMUM (INCH)	=13
MINIMUM (INCH)	=1
MINIMUM (PSI/VOLT)	=0.0005
SEN-ON (INCH)	=20
SEN-ON (INCH RMS)	=91
SEN-ON (INCH AVG)	=74
SEN-ON DIST (FT)	=150.0



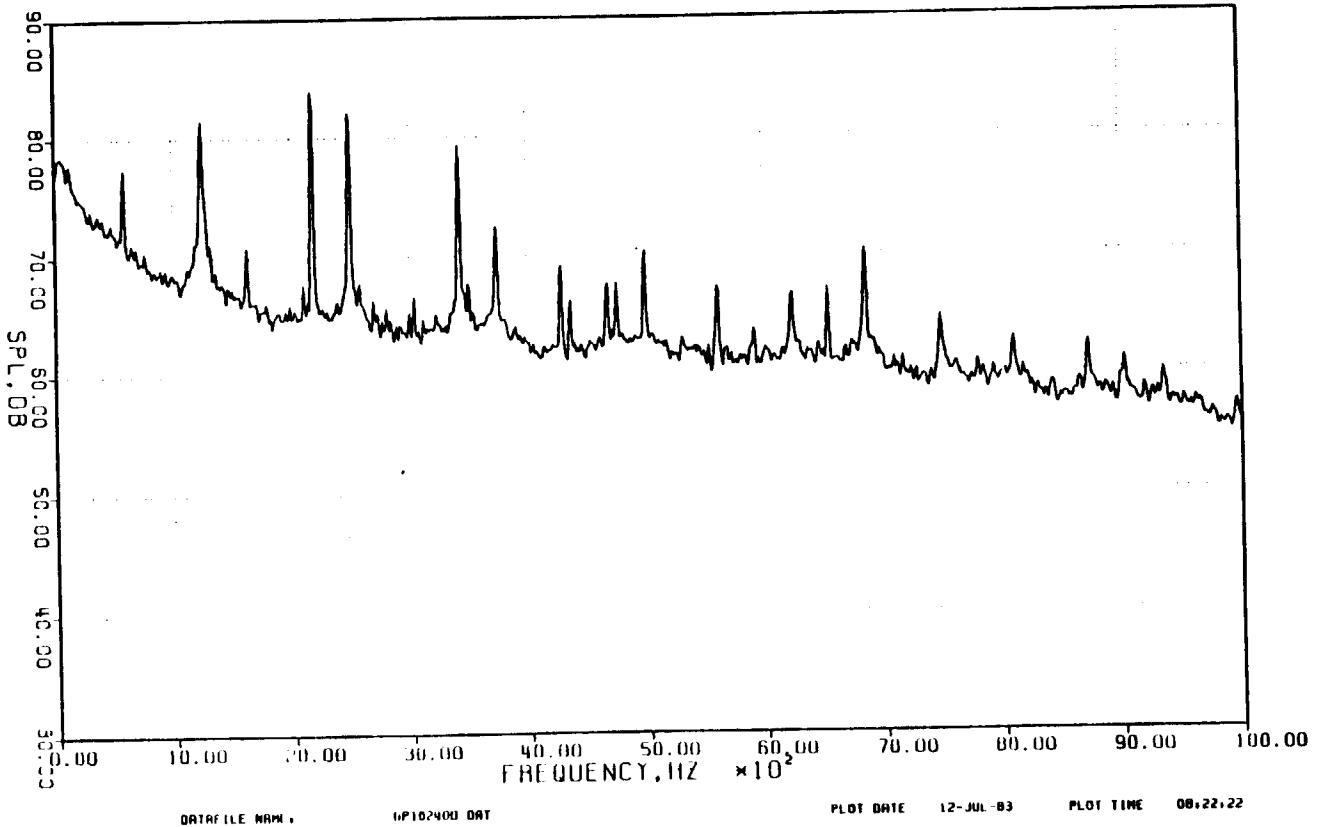
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Appendix 9.2.4.g

AVERAGED SPECTRUM

70 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY THREADED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2335 RPM, CORE = 11650 RPM

RUN NO.	-10
POINT NO.	-240
BPF	-1245
NO. OF BLOCKS	-2
TEMP DRY (DEG.F)	-65.0
TEMP WET (W.C.)	-54.5
BINN PRESS (PSI)	-29.50
BINN SIZE	-2048
SAMP RATE (KHZ)	-25.600
A/D (10) (THRESHOLD)	-10.000
REF. DENSITY (SEC)	-1.00
REF. LEVEL	-100
REF. DENSITY (Hz)	-13
REF. DENSITY (Hz)	-1
SEN.SDR PS1/VOLT	-0.0005
SEN.SDR GAIN (DB)	-20
SEN.SDR CH10 RMS	-0.92
SEN.SDR CH10 REF	-1.04
SEN.SDR DIST (FT)	-150.0



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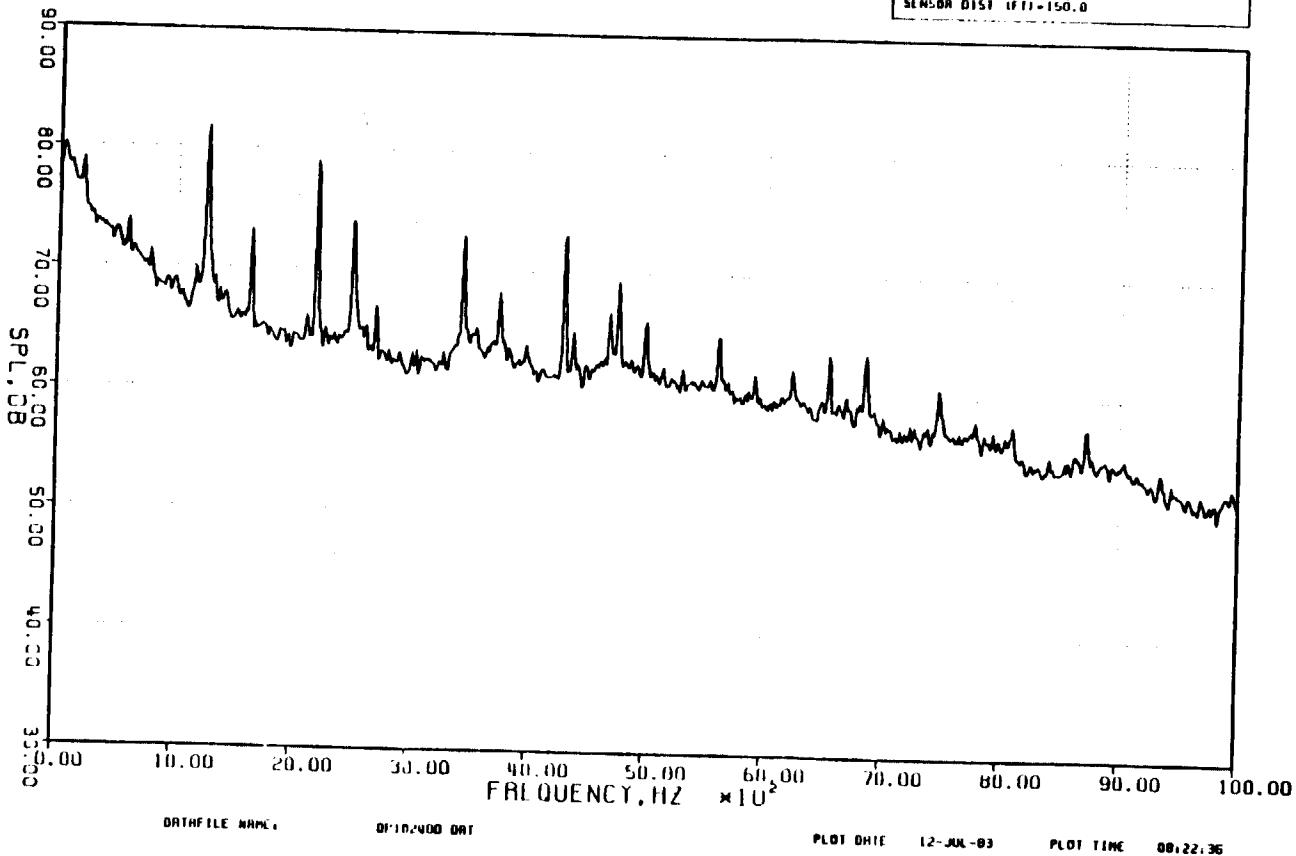
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## Appendix 9.2.4.h

## AVERAGED SPECTRUM

80 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 10 IPS  
 FHN = 2335 RPM. COHE = 11650 RPM

RUN NO.	-10
POINT NO.	-240
BPF	-1245
NO. OF BLINDES	-1
TEMP INT (DEG.F)	-65.0
TEMP WLT (DEG.F)	-54.5
BIRD PRESS (PSI)	-29.50
BLIND SIZE	-0.040
SAMPLE RATE (HZ)	-25.000
R/H (1111 H INCH)	-0.0000
REL HUMID (SEC)	-0
MMI HUMIS	-100
MMI HUMDTM (HZ)	-13
MMI HUMDT (MMIN)	-1
SIG-ON CRIT (AUG)	-0.0005
SEN-ON CRIT (AUG)	-0.0
SEN-ON CRIT RMS	-0.91
SEN-ON CRIT PCT	-1.4
SENSOR DIST (FT)	-150.0



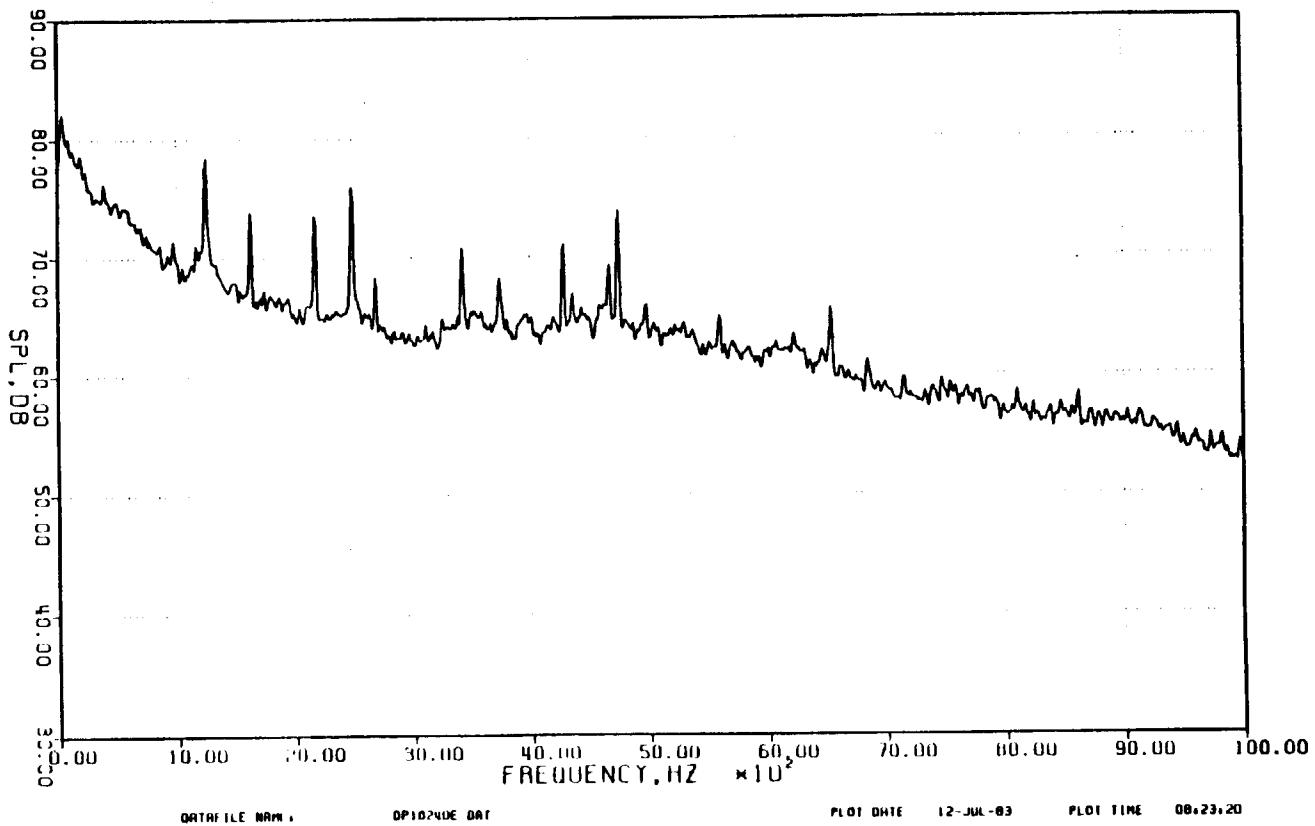
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### Appendix 9.2.4.1

#### AVERAGED SPECTRUM

90 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TILTLED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2335 RPM, CORE = 11650 RPM

RIM NO.	=10
POINT NO.	=240
PPF	=1245
NO. OF BLADES	=32
TEMP. DATA (DEG.F)	=65.0
TEMP. DATA (DEG.F)	=54.5
BLADE SP. SEC (1/MIN)	=1.50
BLADE SP. SEC (1/MIN)	=210.0
SIMP. RATE (MHZ)	=25.600
H/H (1/(MHZ))	=10.000
RECORD (TIME(SEC))	=6
H/V RANGE	=100
BIG H/V DTH (HZ)	=13
WAVEFORM DTH (HZ)	=1
SENSOR 1 ST/VDL	=0.0005
SENSOR 1 A/D	=20
SENSOR 1 HI LO RMS	=0.93
SENSOR 1 HI LO PPF	=1%
SENSOR DIST (FT)	=150.0



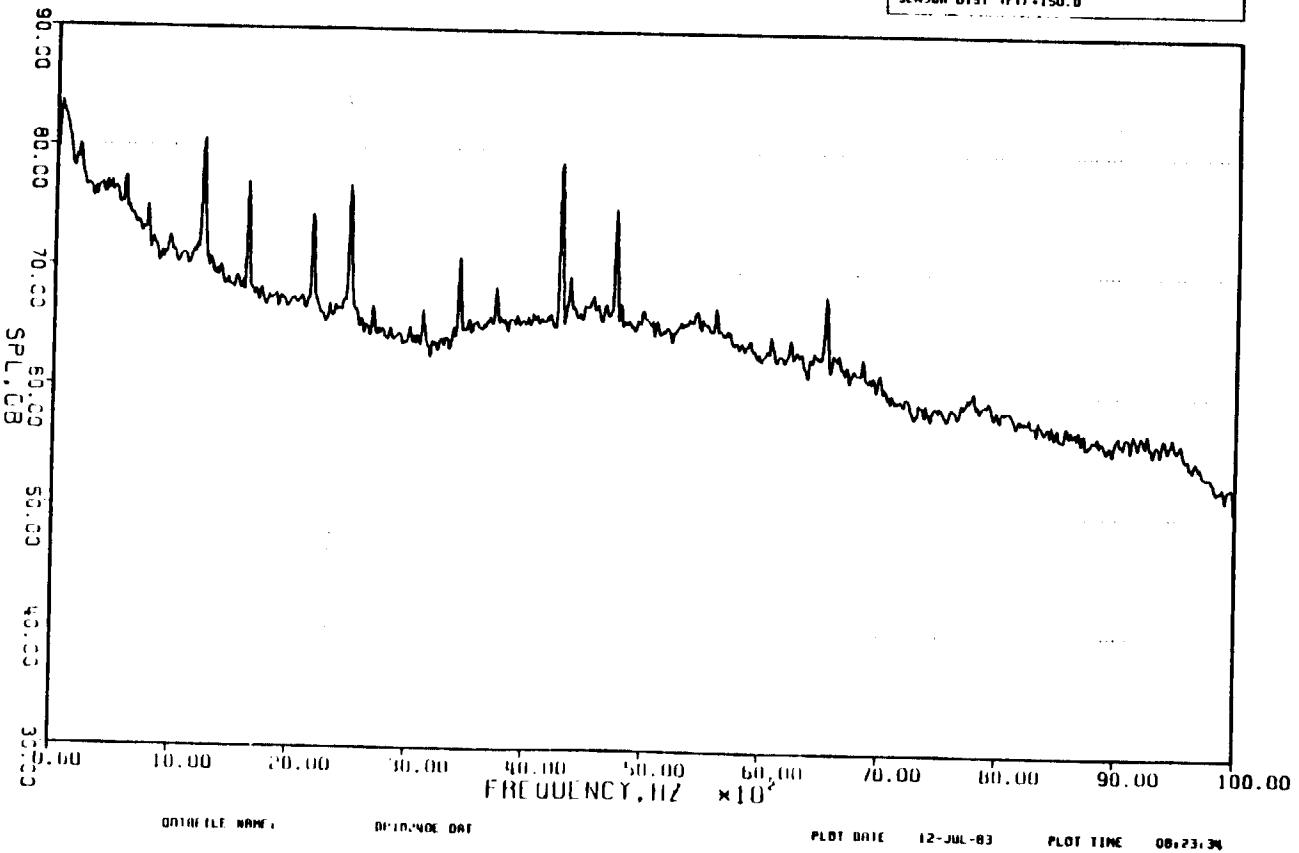
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## Appendix 9.2.4.j

## AVERAGED SPECTRUM

100 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TRAIATED  
 SITE 40 . DATE: 8- JUN-83  
 TYPE: E315 , 30 IPS  
 FAN = 2335 RPM, CORL = 11650 RPM

RUN NO.	=10
POINT NO.	=240
NO. OF SPOTS	=245
NO. OF BLADES	=3
TEMP DRY (IN G.F.)	=65.0
TEMP WET (IN G.F.)	=54.5
BMR (PH55 1" MU)	=29.50
BLADE SIZE	=214.8
SIDE AREA (INCH)	=20.600
A/V LINEAR (INCH)	=10.000
RECORD TIME (SEC)	=100
REV HOURS	=100
MINIMUM DIA (IN)	=13
MINIMUM DIA (MM)	=1
SENGOR PST/WHT	=0.0005
SENGOR CRITICAL THICK	=0.005
SENGOR CRITICAL RMS	=1.95
SENGOR CR REFL	=124
SENGOR DTSI (IN)	=150.0

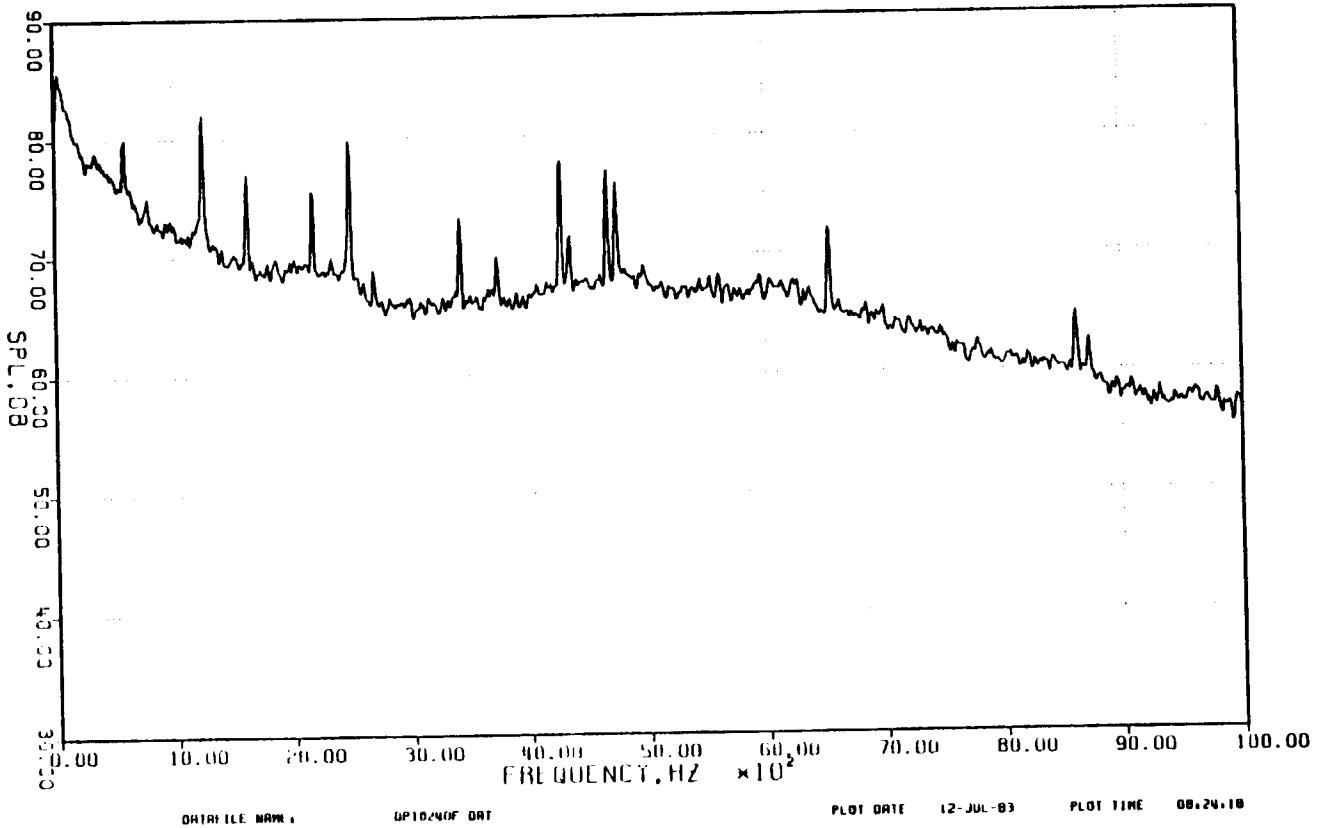


Appendix 9.2.4.k

AVERAGED SPECTRUM

110 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY THREADED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2335 RPM, CORE = 11650 RPM

RUN NO.	=10
POINT NO.	=240
SPF	=1245
NO. OF BLADES	=12
TEMP DRY (REC.F)	=50.0
TEMP WET (REC.F)	=54.5
WIND PHASE (°NG)	=29.5
BLADE SIZE	=2048
CHIMP RATE (KHZ)	=25.600
DC FILTER (KHZ)	=10.000
REL TIME (SEC)	=100
REL RATE	=100
REL WIDTH (HZ)	=13
MINMAX(1)-MAXMIN	=1
SIM-DIG PSV/VOLT	=0.0005
SIM-DIG GAIN (DB)	=20
SIM-DIG L10 RMS	=0.93
SENSOR CH. REF	=124
SENSOR DIST (FT)	=150.0



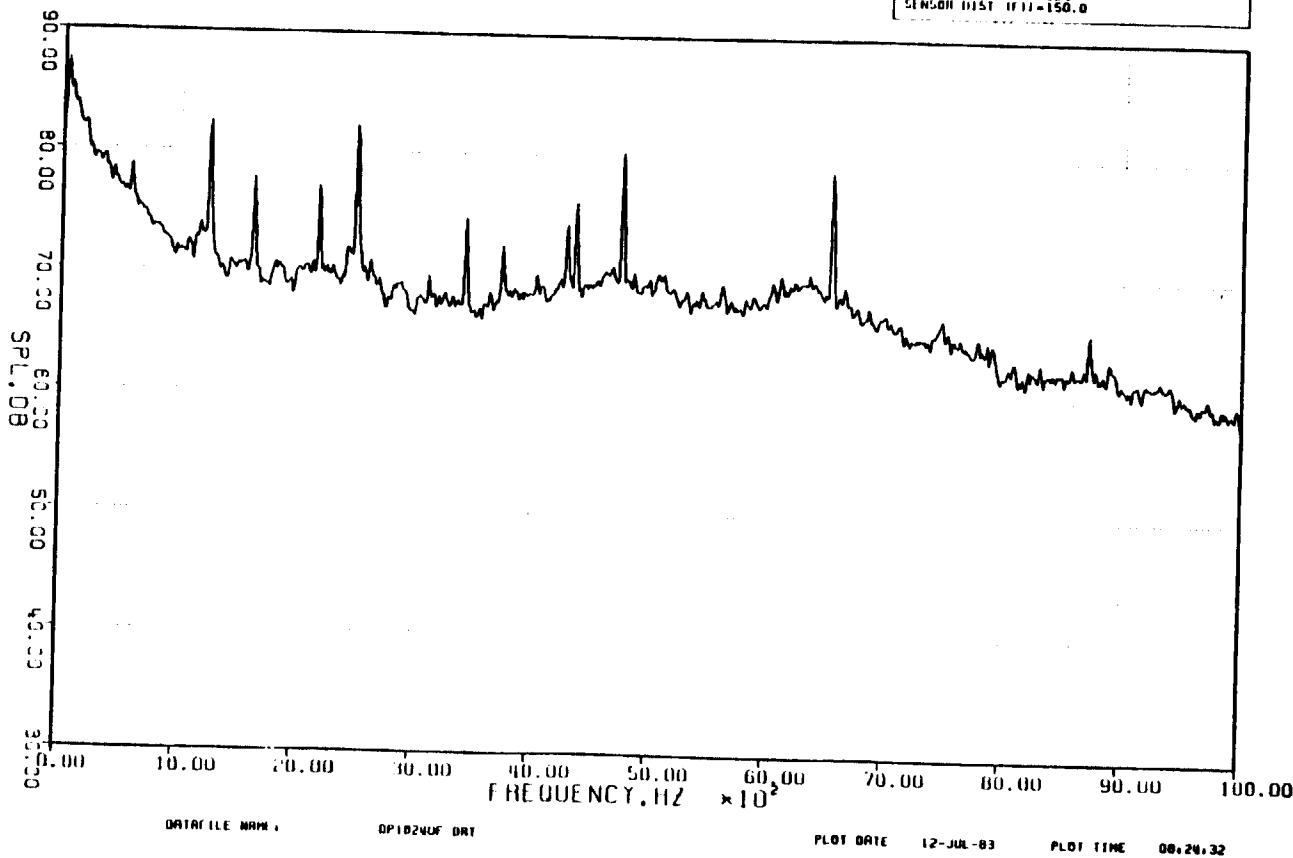
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## Appendix 9.2.4.1

## AVERAGED SPECTRUM

120 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY THREADED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2335 RPM. COHL = 11650 RPM

RUN NO.	= 10
PRINT NO.	= 240
SPF	= 1245
NO. OF BLADES	= 32
TEMP DH1 (DEG.F)	= 65.0
TEMP WH1 (DEG.F)	= 54.5
WIND DIA (INCH) = 29.50	
WIND RPT (INCH) = 14.00	
WIND RPT (INCH) = 22.00	
WIND RPT (INCH) = 10.000	
WIND RPT (INCH) = 0	
WIND RPT (INCH) = 100	
WIND RPT (INCH) = 10	
SENOR VSL/VOL = -0.0016	
SENOR VOL/VOL = 10	
SENOR VOL/VOL = 0.92	
SENOR VOL/VOL = 124	
SENOR DIST (FT) = 150.0	

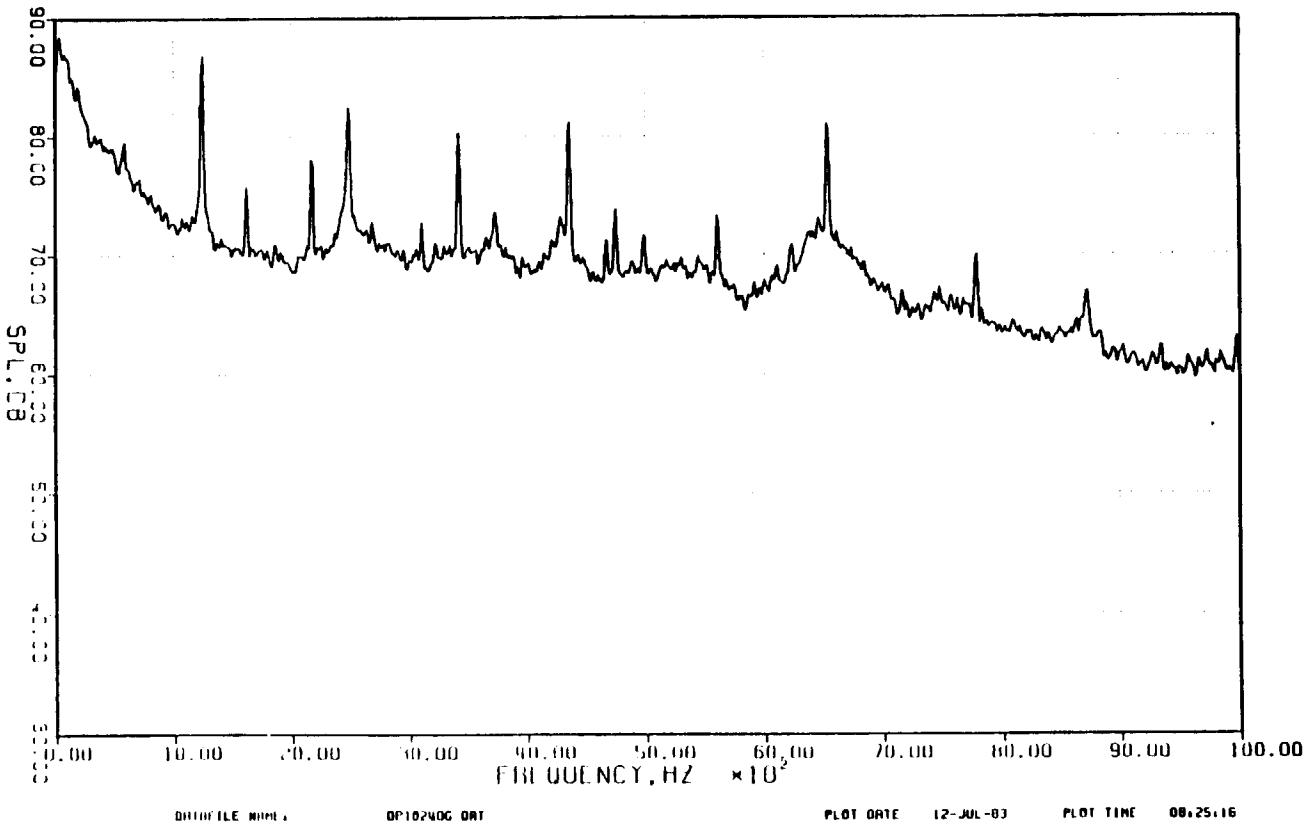


Appendix 9.2.4.m

AVERAGED SPECTRUM

130 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2335 RPM. COINE = 11650 RPM

RUN NO.	= 10
POINT NO.	= 240
WPF	= 1245
NO. OF BLADES	= 32
TIME DATA (DB), F1=65.0	
TIME DATA (DB), F2=65.5	
MIN. PHASE (deg)	= 29.50
BLOCK SIZE	= 2048
SIMP. WAVE (HZ)	= 25.600
A/V FILTER (HZ)	= 10.000
REFLECT TIME (ELT)	= 8
REV. BLADES	= 100
MANUFACTURER (HZ)	= 13
MANUFACTURER (REV)	= 1
SENSOR PSV/VOLT	= 0.0016
SENSOR CHIN (DB)	= 10
SENSOR CHIN (HNS)	= 0.91
SENSOR CHIN (L1)	= 1.74
SENSOR DIST (ft)	= 150.0



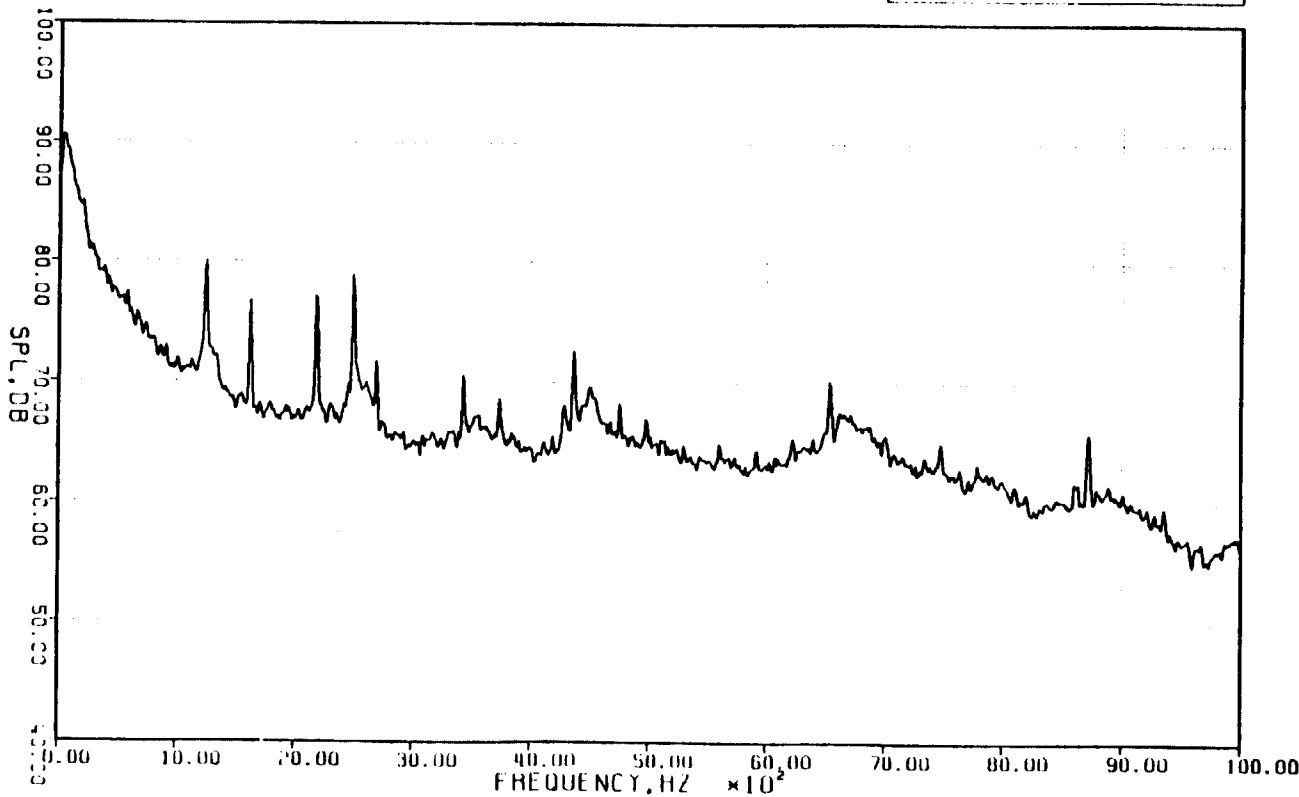
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## Appendix 9.2.4.n

## AVERAGED SPECTRUM

140 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY THREADED  
 SITE 40, DATE: 8-JUN-83  
 TAPE: E315, 30 IPM  
 FHN = 2335 RPM, LINE = 11650 RPM

RUN NO.	=10
POINT NO.	=1240
MPF	=1240
NO. OF BLOCKS	=32
TEMP DRY (DEG.F)	=65.0
TEMP WET (DEG.F)	=54.5
DRY BLD (55.1°FNG)	=54.50
WET BLD	=50.00
SIMP. ROLL (HZ)	=25.000
W/O FILTER (HZ)	=10.000
ROLL TIME (SEC)	=8
AVERAGES	=100
HARMONIC (HZ)	=13
LINEAR (HZ)	=1
SENSOR PSI/VOLT	=0.0015
SENSOR LOAD (LB)	=10
SENSOR LIN IR RMS	=0.94
SENSOR LIN IR REL	=124
SENSOR DIST (FT)	=150.0



DATAFILE NAME:

0P10240G.DAT

PLOT DATE 12-JUL-83

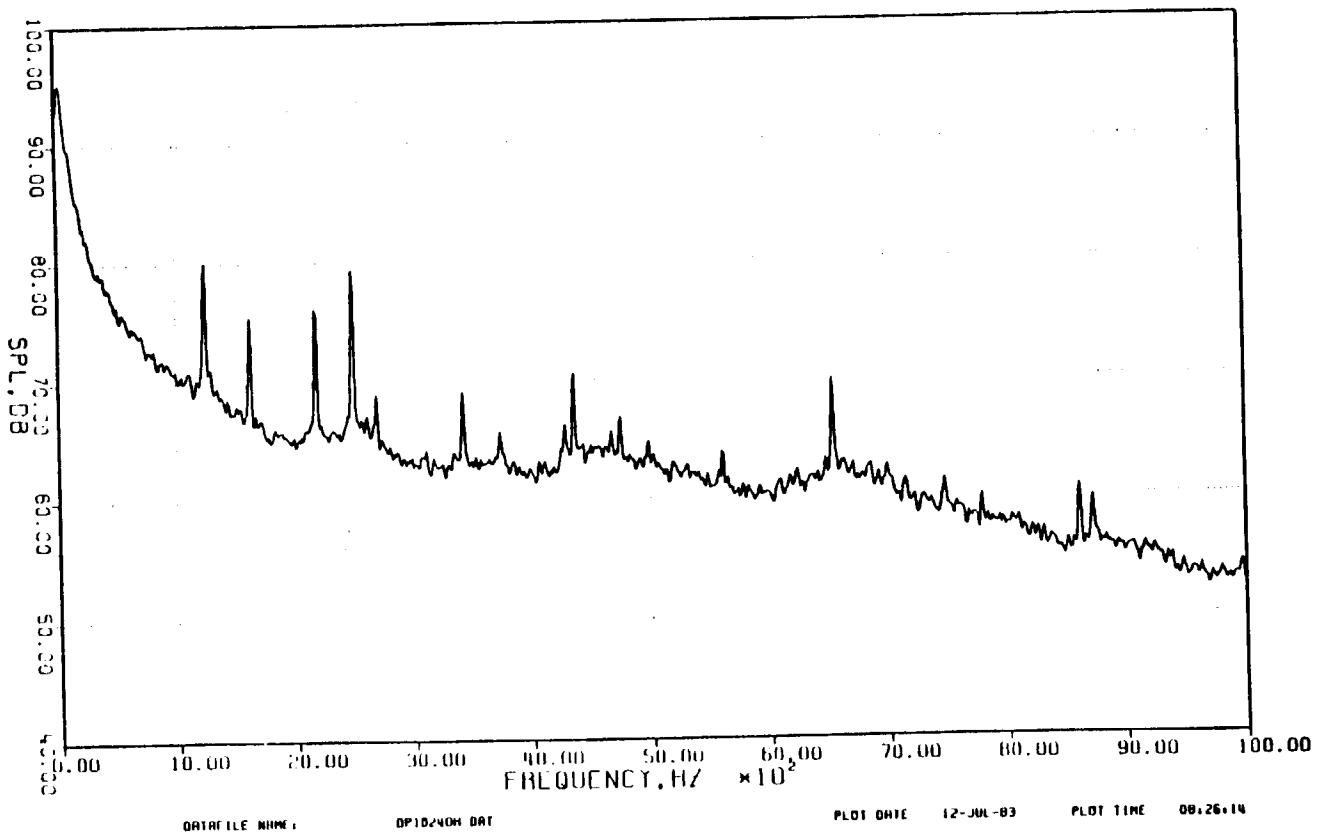
PLOT TIME 08:25:30

Appendix 9.2.4.o

AVERAGED SPECTRUM

150 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TRATED  
 SITE NO . DATE: 8-JUN-83  
 TAPE: E315 , 30 IPM  
 FAN = 2335 RPM, CORE = 11650 RPM

RUN NO.	=10
POINT NO.	=250
DPF	=346
NO. OF BLADES	=32
TEMP DAY (DEG.F)	=65.0
TEMP NIGHT (DEG.F)	=54.5
BINCH PRESS (INCH)	=29.50
BULK SIZE	=2048
SUMM HARMONIC	=10.000
DATA FILTER (HZ)	=10.000
DATA POINT TIME (S/L)	=8
DATA POINTS	=100
DATA POINTS (HZ)	=13
MINIMUM (DBWAV)	=0
SEEN-BR TST/VOL 1	=0.0016
SEN-BR CNTN. THRESH	=10
SEN-BR CNTN. RMS	=0.91
SEN-BR CNTN. REL	=1.24
SEN-BR DIST (ft)	=150.0



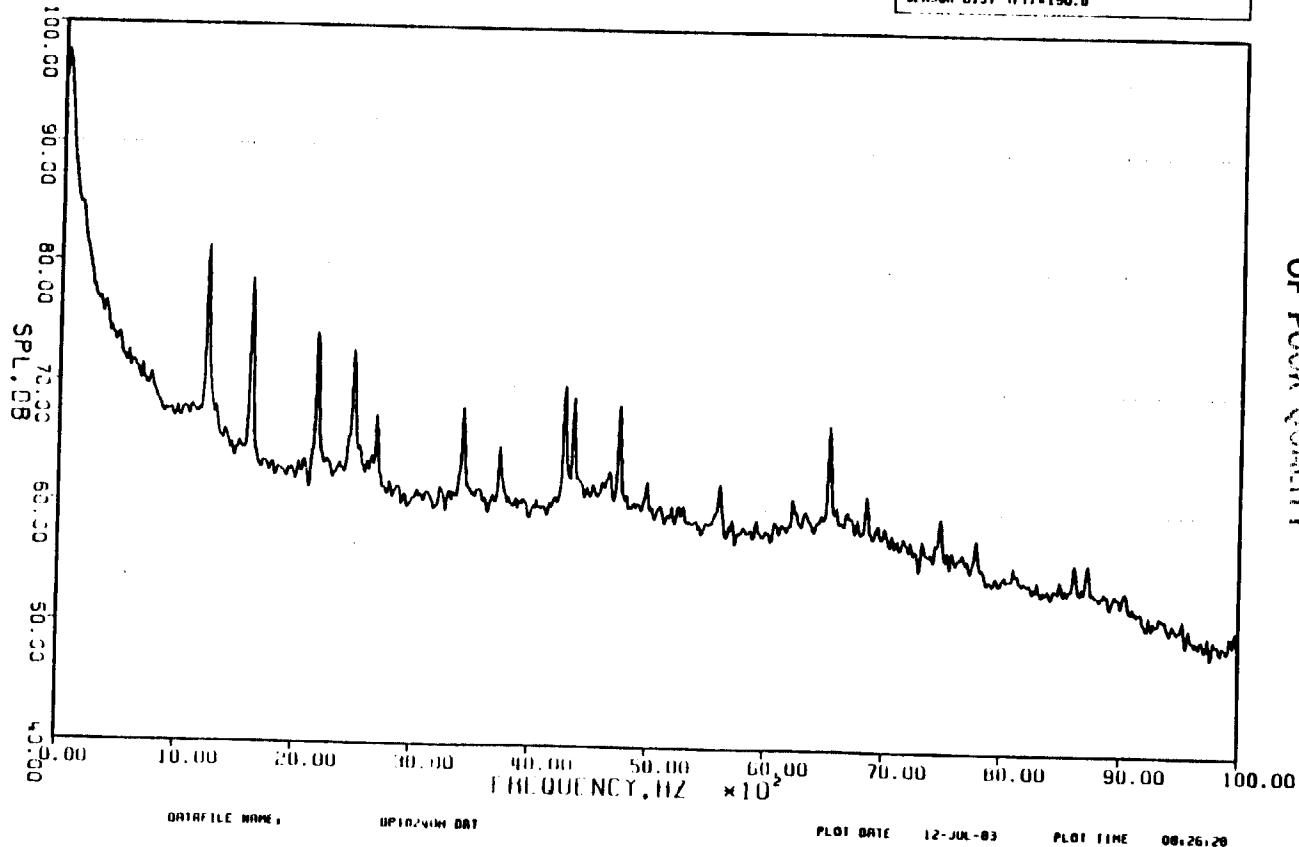
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## Appendix 9.2.4.p

## AVERAGED SPECTRUM

160 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY THREADED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2335 RPM, CORE = 11650 RPM

RUN NO.	= 10
POINT NO.	= 240
REV	= 245
NO. OF BLADES	= 12
TEMP BHT (10EG,1) = 64.5	
TEMP PLATE (10EG,1) = 79.50	
BLADE TILT = 21MB	
SHM NUTT. (INT'L) = 0.000	
NUT TORQ. (INT'L) = 10.000	
NUT TORQ. (INT'L) = 0	
AVL ROLL = 100	
BURNIN/TIM (INT'L) = 13	
SIMSON U51/2 (INT'L) = 0.0016	
SIMSON U51/2 (INT'L) = 10	
SIMSON U51/2 (INT'L) = 0.00	
SIMSON U51/2 (INT'L) = 1.24	
SIMSON U51/2 (INT'L) = 150.0	

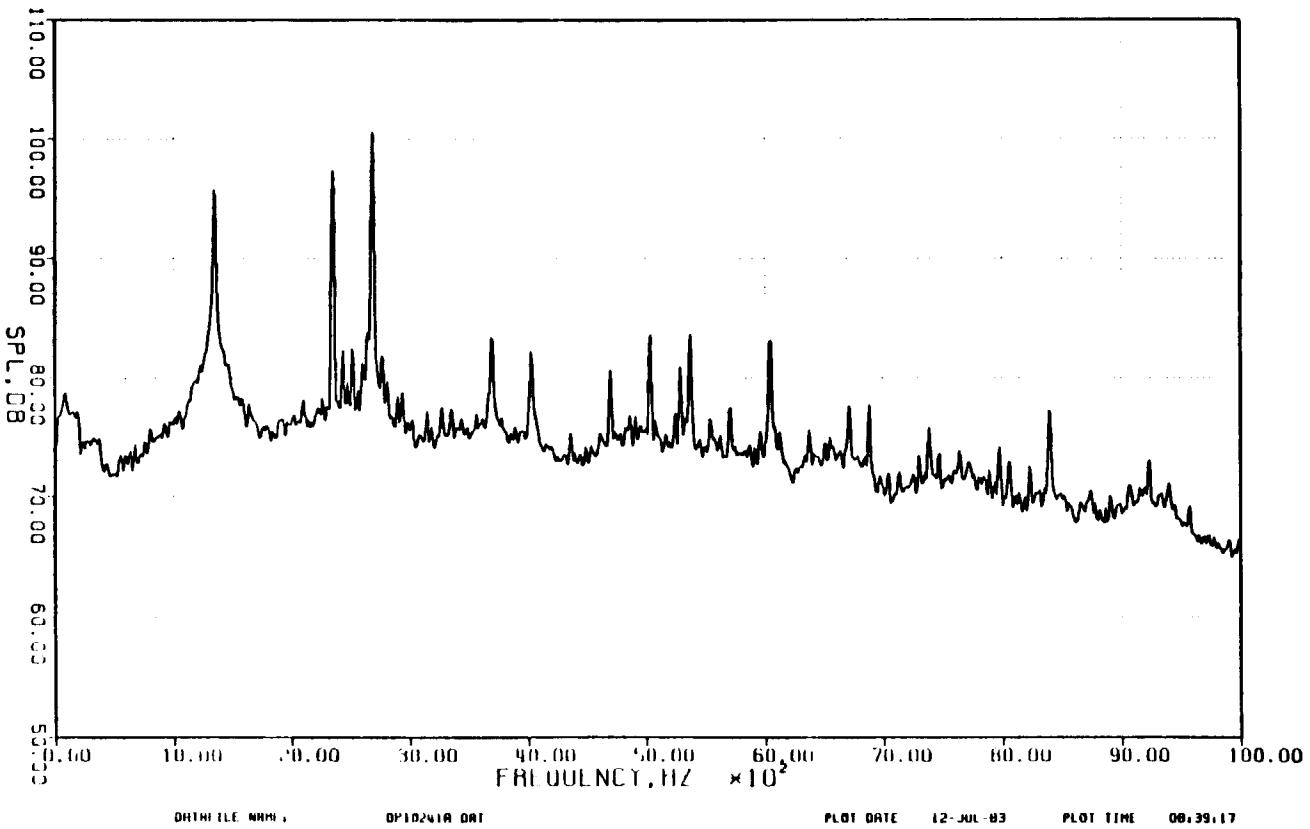


Appendix 9.2.5.a

AVERAGED SPECTRUM

10 DEG G/P  
 E CUBED PEEBIES TEST.  
 CONFIG #1 FULLY THREADED  
 SITE 40 , DATE: 8-JUN-83  
 TYPE: E315 , 30 IPS  
 FAN = 2519 RPM, COHE = 11066 RPM

RUN NO.	= 11
POINT NO.	= 241
BPF	= 1343
NO. OF BLADES	= 32
TEMP DIRT (DEG.F)	= 65.0
TEMP WT (DEG.F)	= 54.5
BLIND PERCENT (%)	= 24.50
SWEEP RATE (HZ)	= 25.600
A/D FILTER (HZ)	= 10,000
RECORD TIME (SEC)	= 8
AVE HNGS	= 100
DIMINUTIVE HZ	= 13
SENSEOH PST/VOL	= -0.0016
SENSEOH CH1W (DB)	= 10
SENSEOH CH1B (DB)	= 0.90
SENSEOH CH1F	= 1.74
SENSEOH DIST (FT)	= 150.0



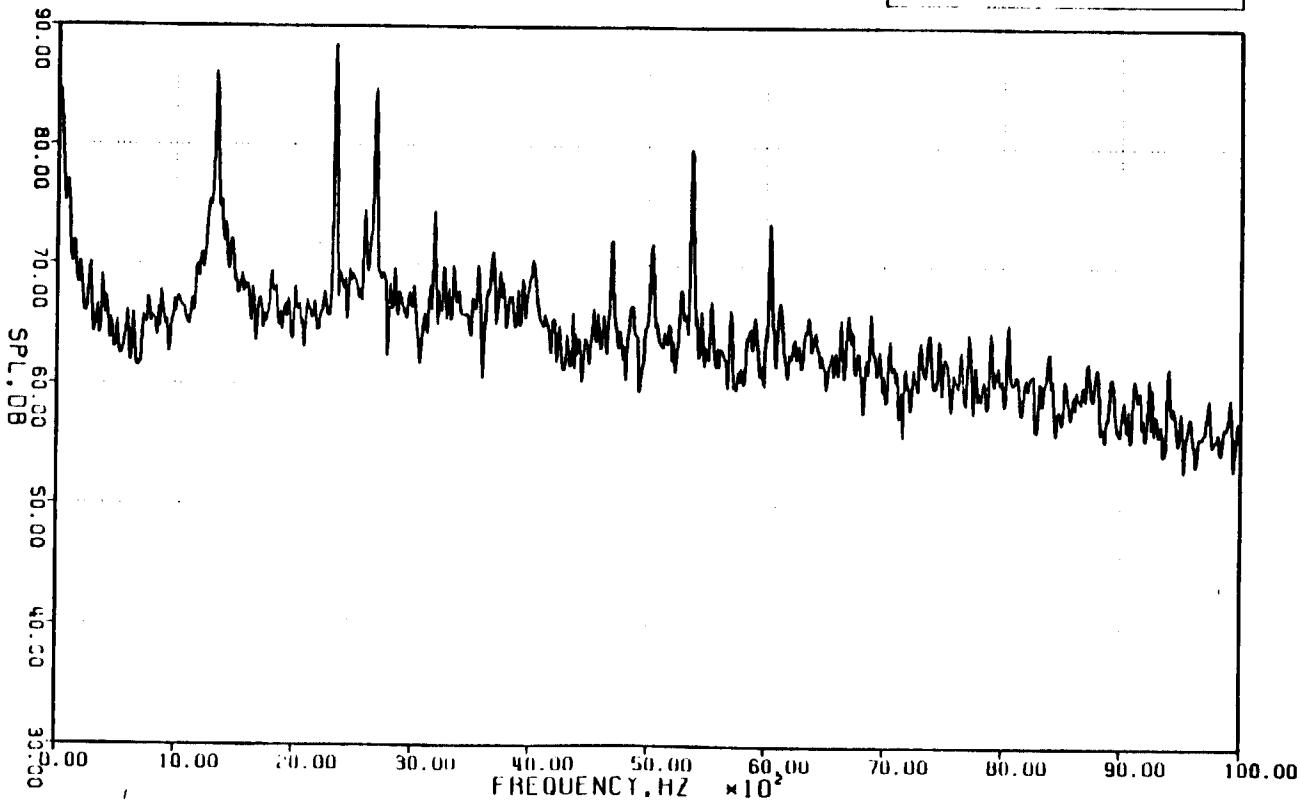
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## Appendix 9.2.5.b

## AVERAGED SPECTRUM

20 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2519 RPM. CORE = 11866 RPM

RUN NO.	= 11
POINT NO.	= 241
DATE	= 12-JUN-83
NO. OF BLADES	= 32
TEMP DAT (DEG.F)	= 65.0
TEMP MF (DEG.F)	= 54.5
AMBI PHASE (°NGC)	= 29.50
REC SITE	= 2048
SIMP. RATE (KHZ)	= 25.000
A/D FILTER (KHZ)	= 0.000
RECORD TIME (SEC)	= 0
HV (MGauss)	= 100
BANDWIDTH (HZ)	= 13
MINIMUM (HANN)	= 1
SIGNAL (V)/VOLT	= 0.0016
SIGNAL (V)/DB	= 0.0
SENSOR L1 (DBS)	= -69
SENSOR L1 (REF)	= -24
SENSOR DIST (FT)	= 150.0



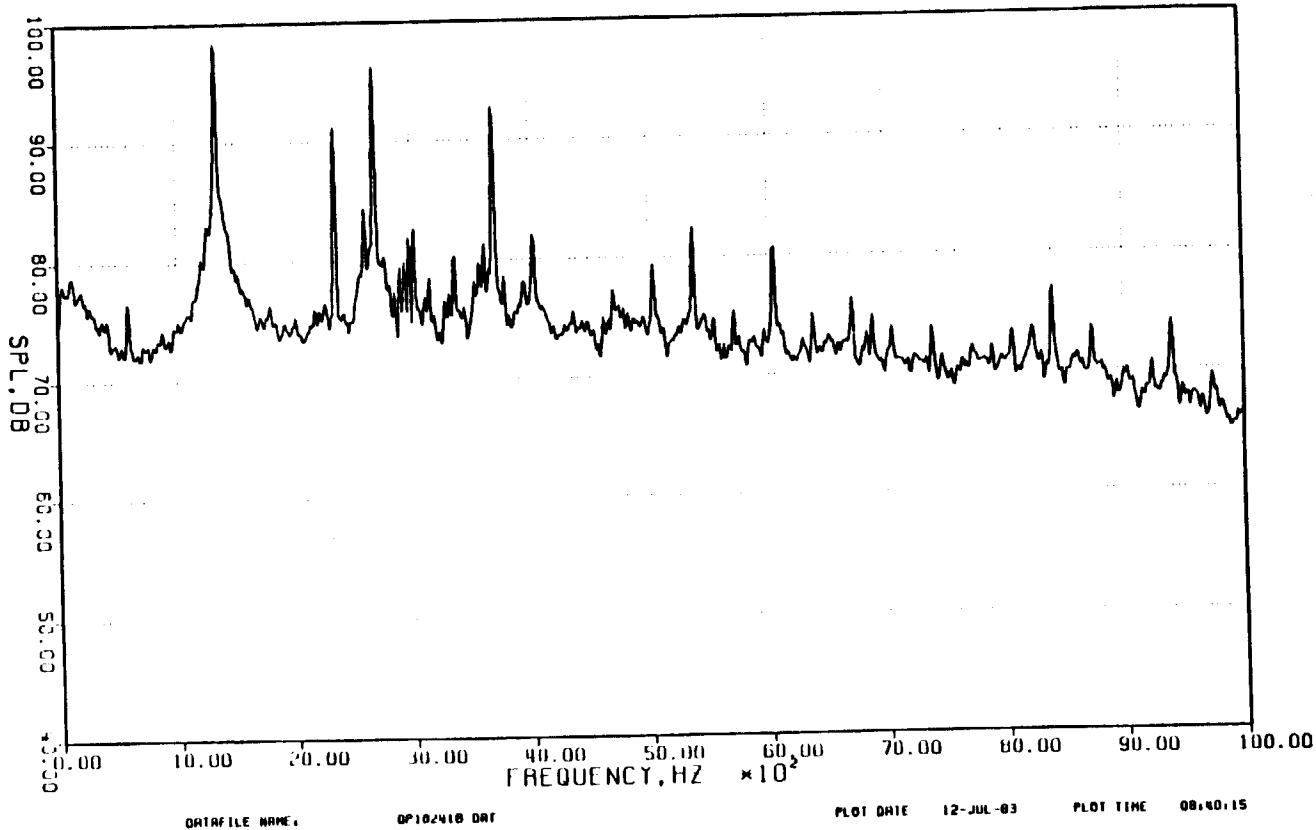
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Appendix 9.2.5.c

AVERAGED SPECTRUM

30 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY THREADED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2519 RPM, CORE = 11066 RPM

RUN NO.	=11
POINT NO.	=244
BPM	=343
NO. OF BLADES	=32
TEMP DRY (DEG.F)	=65.0
TEMP MET (DEG.F)	=54.5
BANK PRESS (PSI)	=29.50
BLOCK SIZE	=214B
SAMPLE RATE (KHZ)	=15.600
REC'D TIME (SEC)	=10.000
OVERLAPS	=100
WINDOW WIDTH (HZ)	=13
WINDOW (I-HANN)	=1
SIN-ON PSV/VMT	=0.0016
SIN-ON LINEAR (DB)	=10
SIN-ON ENCL A/F	=1/4
SIN-ON DIST (FT)	=150.0



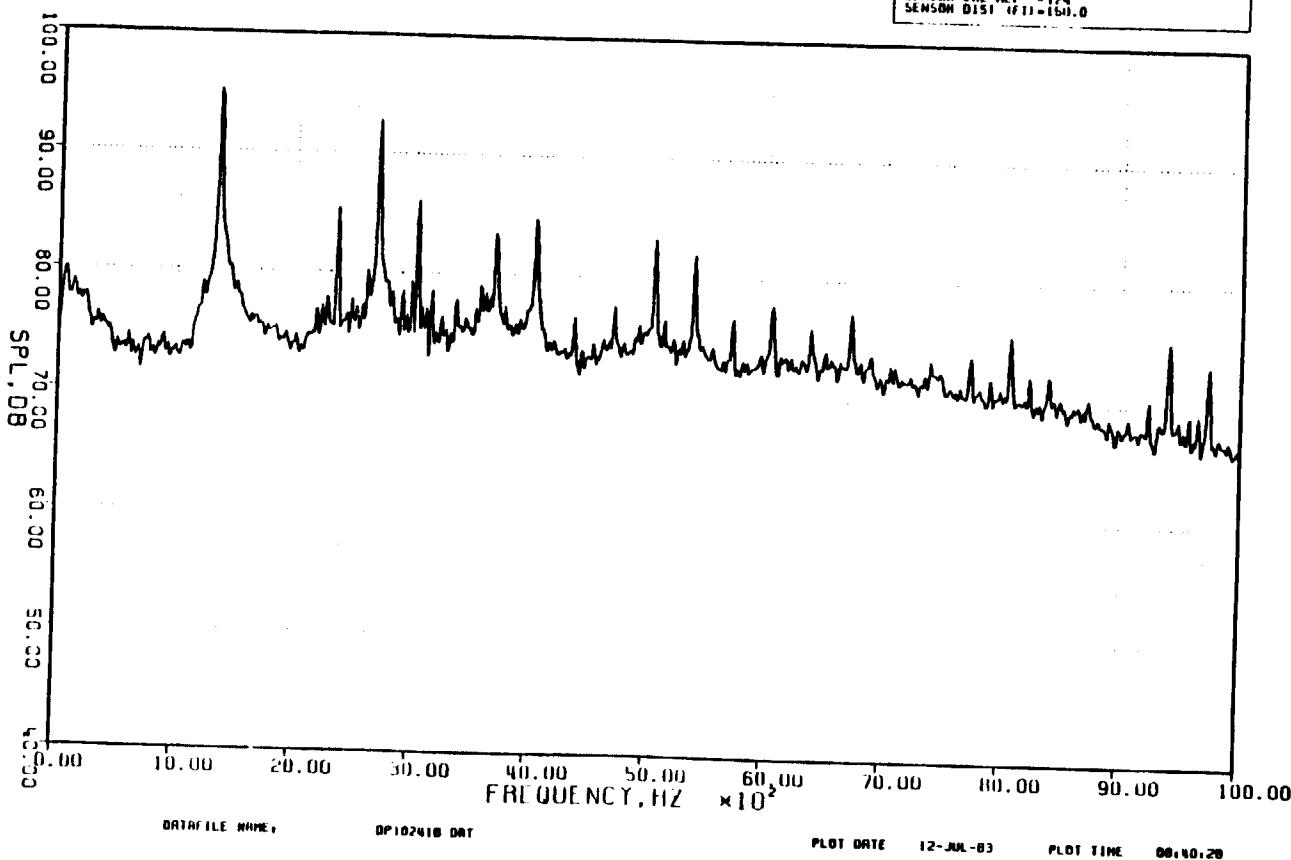
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## Appendix 9.2.5.d

## AVERAGED SPECTRUM

40 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2519 RPM, CURE = 11866 RPM

RUN NO.	-11
POINT NO.	-261
BPF	-243
NO. OF BLADES	-32
TEMP DRY (DEG.F)	-65.0
TEMP WET (DEG.F)	-54.5
BIRD PRESS (PSIG)	-29.50
BIRD RATE	-2148
SHMP RATE (IN/H)	-25.500
A/D (ITERATION)	-10.000
REC TIME (SEC)	-0.000
REV HZ/SEC	-100
MINIMIZM (HZ)	-13
MINIMIZM (MM)	-0.000
SENSOR GRADIENT -0.0016	
SENSOR GRAD VIBR -0.0	
SENSOR FRIE RMS -0.93	
SENSOR LAL MET -1.24	
SENSOR DIST (FT) -150.0	



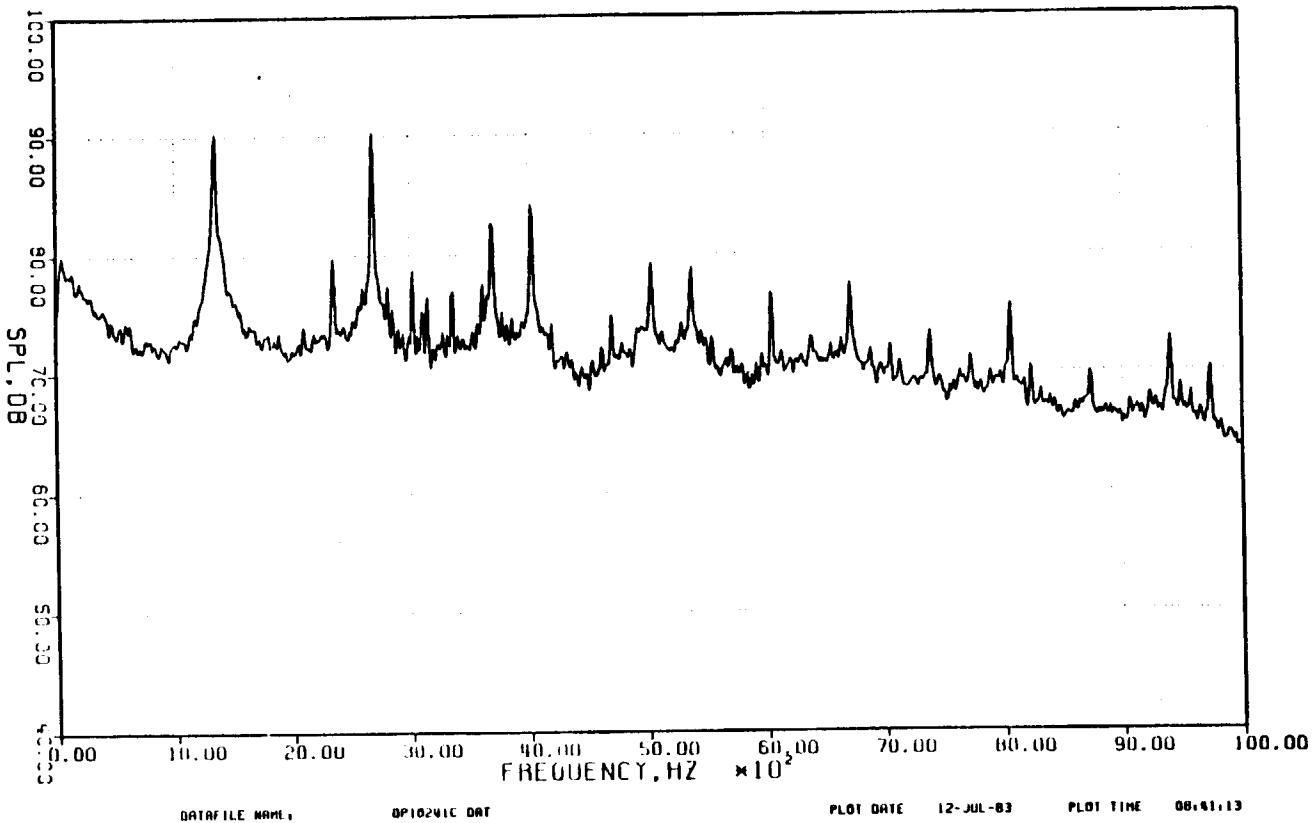
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Appendix 9.2.5.e

AVERAGED SPECTRUM

50 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2519 RPM, COHE = 11866 RPM

RUN NO.	= 11
POINT NO.	= 251
BPF	= 243'
NO. OF BLOCKS	= 32
TEMP. DAT (DEG.F)	= 65.0
TEMP. WET (DEG.F)	= 54.5
BINHO PRESS (PSI)	= 29.50
BINHO SIZE	= 2048
SUMP RATE (IN/H)	= 25.000
REC. RATE (IN/H)	= 20.000
REC. TIME (SEC)	= 10
AVERAGES	= 100
BINWIDTH (IN/H)	= 13
MINIMUM (IN/H)	= 1
SEISMIC PSI/VOLT	= 0.0016
SEISMIC GAIN	= 100
SEISMIC LAT (IN.HRS)	= 0.93
SEISMIC LAT (IN)	= 1.26
SEISMIC DIST (FT)	= 150.0



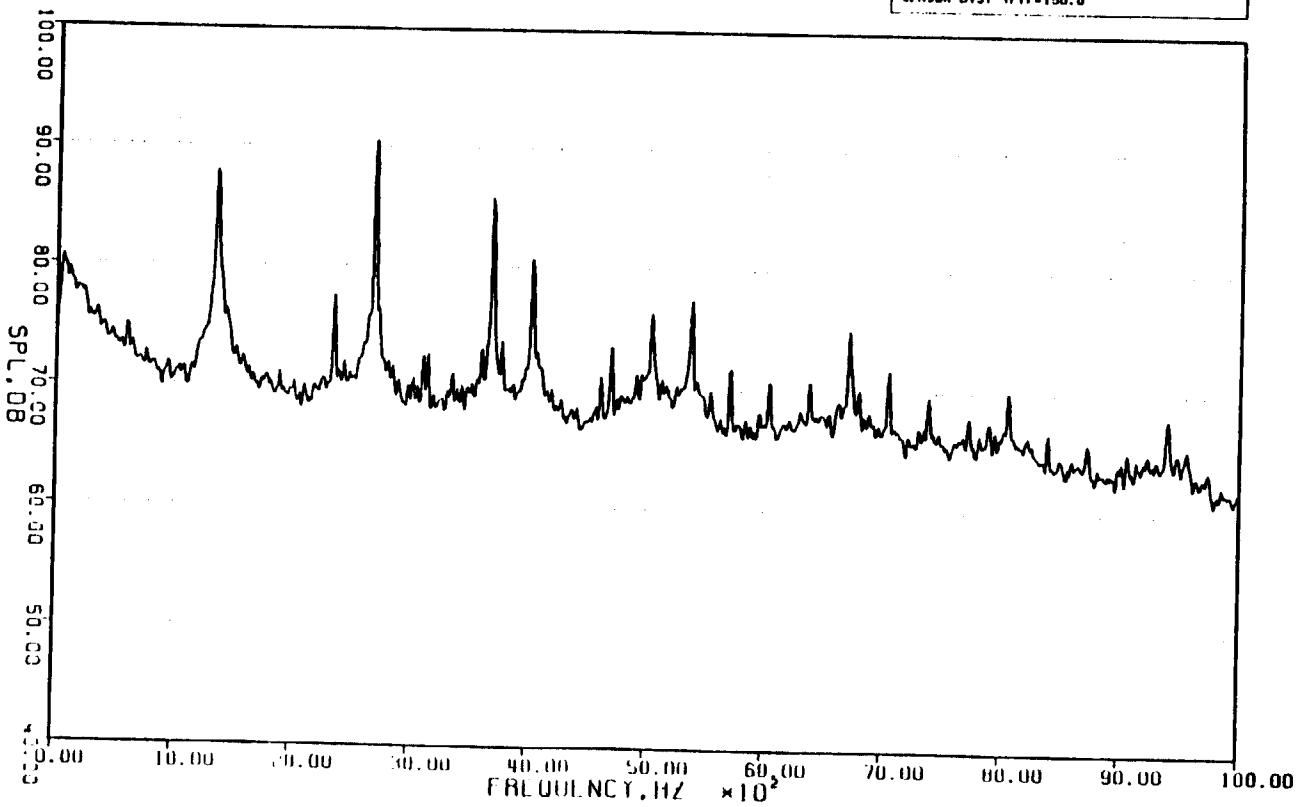
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### Appendix 9.2.5.f

## AVERAGED SPECTRUM

60 DEG C/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY IRRADIATED  
SITE 40 , DATE: 8- JUN-83  
THPE: E315 . 30 IPS  
FAN = 2519 RPM, CORE = 11866 RPM

HUN. NO.	-11
POINT NO.	-261
WPF	-143
NO. OF BLADES	3
TEMP DAY	16.6°F
TEMP NIGHT	16.6°F
WIND SPEED (M/S)	29.50
WIND DIRECTION	204.0
WIND RATE (M/S)	25.60
WIND DIRECTION (DEG)	-10.000
WIND VELOCITY (M/S)	-100
WIND DIRECTION (DEG)	-13
WIND VELOCITY (M/S)	-100
WIND DIRECTION (DEG)	-100.000
WIND VELOCITY (M/S)	-0.0016
SENSOR GAIN (A/D)	-10
SENSOR GAIN (ADS)	-0.91
SENSOR DIST (REF)	-124
SENSOR DIST (M)	-150.0



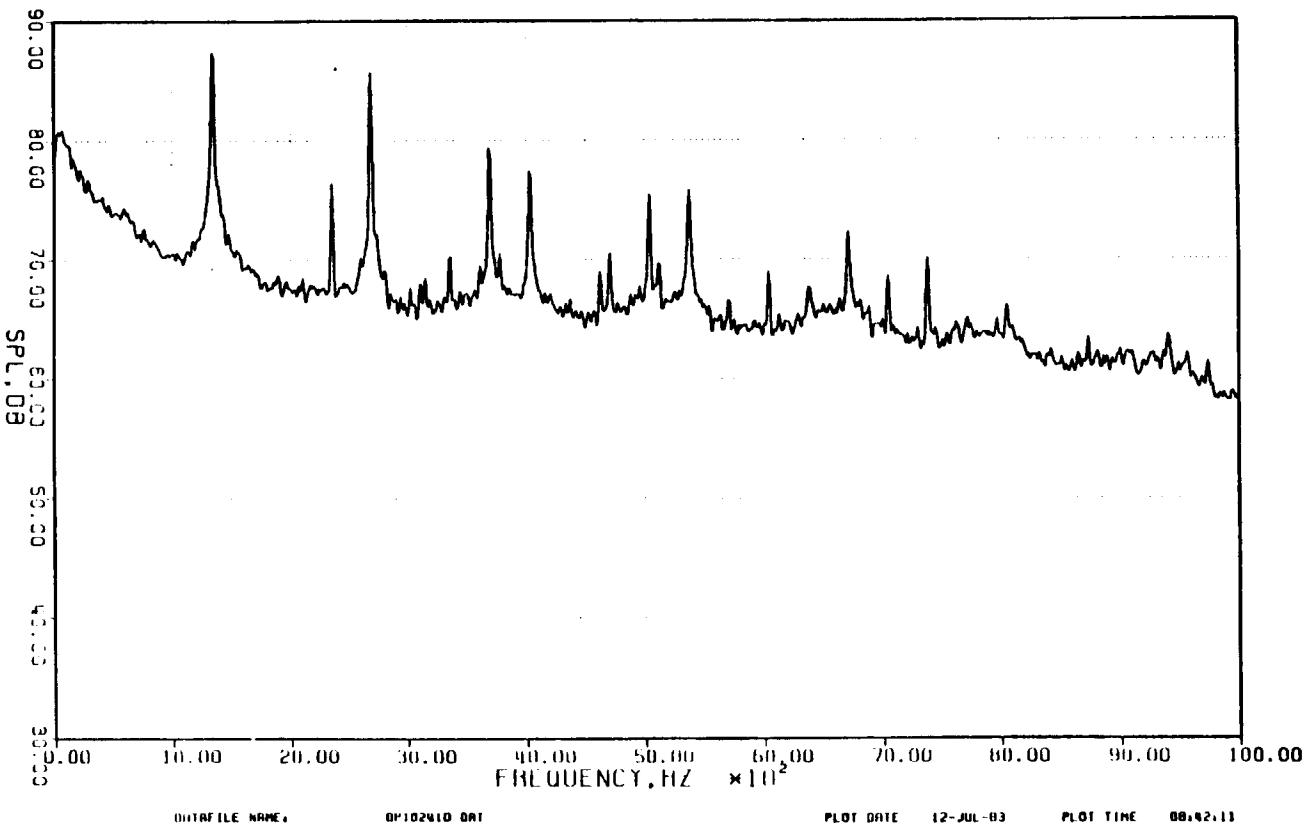
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Appendix 9.2.5.g

AVERAGED SPECTRUM

70 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2519 RPM, CORE = 11866 RPM

RUN NO.	=11
POINT NO.	=201
WPS	=349
NO. OF BLADES	=32
TEMP WHT (DEG.F)	=54.0
TEMP WHT (DEG.C)	=29.50
BINNO PRESS (PSI)	=2048
BLADE SPAN (INCH)	=24.600
P/R (1/1) (A) (INCH)	=10.000
RECORD TIME (SEC)	=8
REV.HZ	=100
BINNO WIDTH (INCH)	=13
MINNO (1-MINNO)	=-
SEN:OH PS:AVGT	=0.0005
SEN:OH CH1:0 RMS	=0.91
SEN:OH CH1:0 RMS	=0.92
SEN:OH CH1:0 RMS	=124
SENSOR DIST (FT)	=150.0



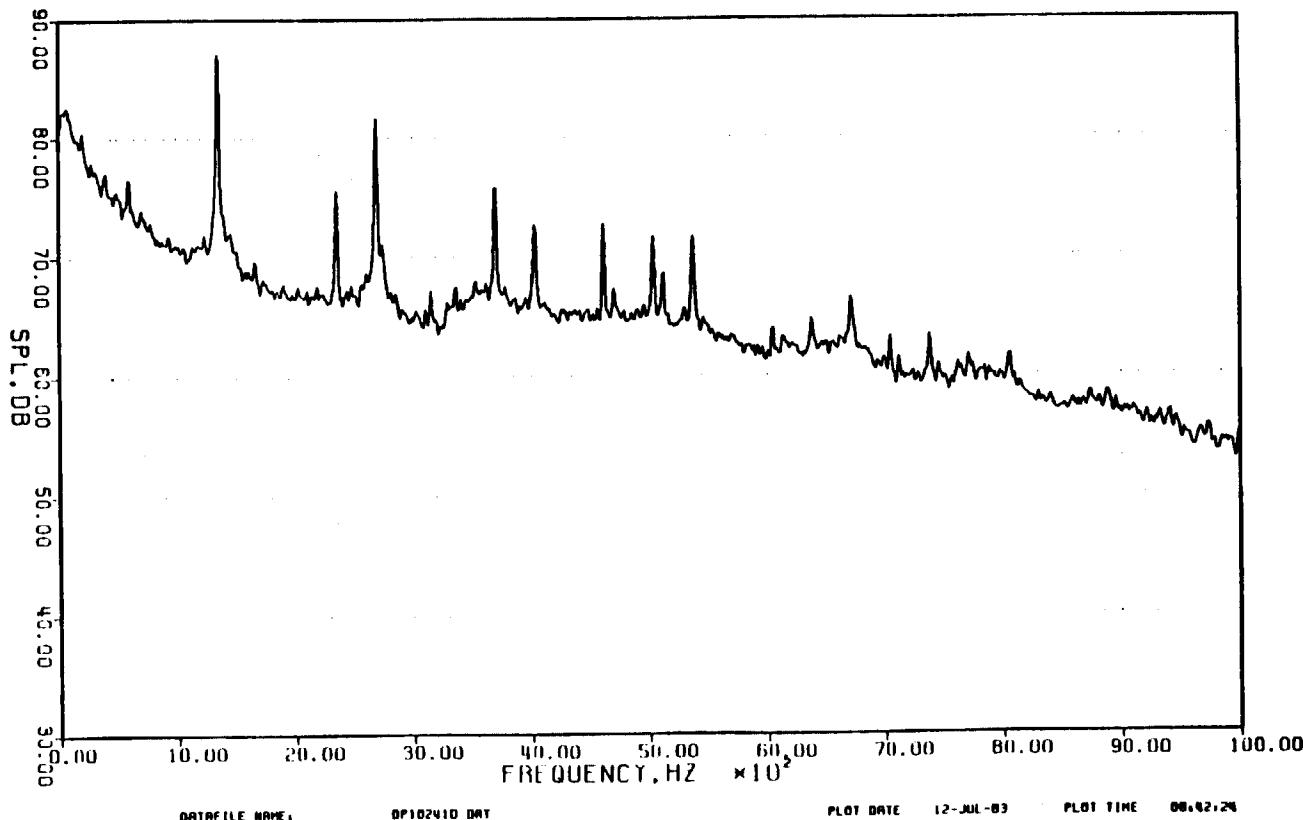
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## Appendix 9.2.5.h

## AVERAGED SPECTRUM

80 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TRATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2519 RPM, COHE = 11866 RPM

RUN NO.	= 11
POINT NO.	= 281
REF.	= 1343
NO. OF BLADES	= 32
TIME DAY (DEG.F)	= 65.0
TIME MT (DEG.F)	= 54.6
DATA PLOT SS (MG)	= 1.50
DATA PLOT 10 (MG)	= 2.00
SAMP RATE (KHZ)	= 24.000
A/D FILTER (HZ)	= 10.000
MICRO TIME (SEC)	= 8
AVG ORDER	= 100
INTEGRATION (HZ)	= 13
INTEGRATION (MG)	= 1
SENSOR 151/VOL	= 0.0005
SENSOR 141/VOL	= 20
SENSOR 141/HZ	= 0.91
SENSOR 141/I	= 124
SENSOR 0151/VOL	= 150.0



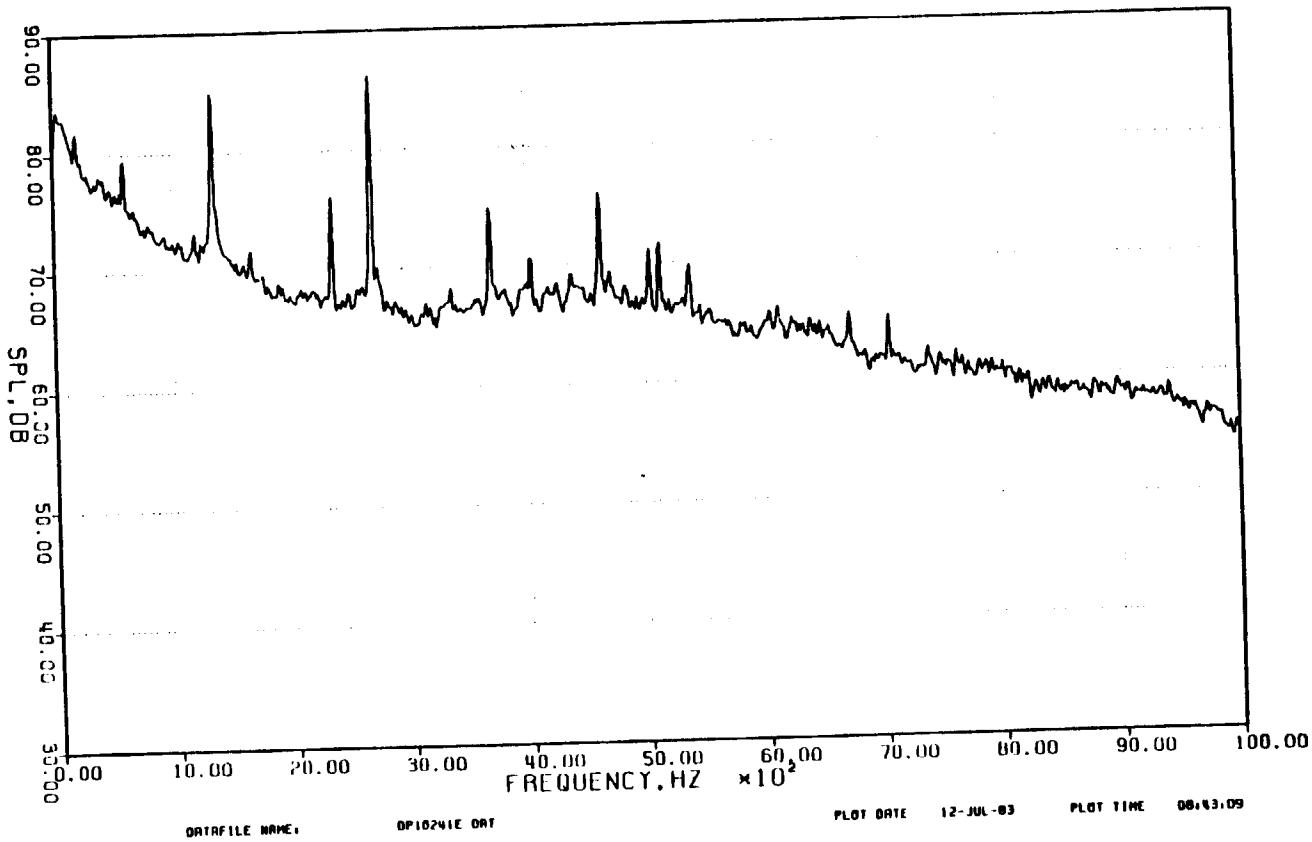
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### Appendix 9.2.5.1

#### AVERAGED SPECTRUM

90 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2519 RPM, CORE = 11866 RPM

RUN NO.	=11
EXPT NO.	=241
SPC	=1343
NO. OF BLADES	=32
TEMP. INT (DEG.F)	=65.0
TEMP. OUT (DEG.F)	=54.5
WIND PRESS (PSI)	=20.50
WIND SPEED (MPH)	=25.00
BLADE SPAN (INCH)	=25.000
BLADE DIAMETER (INCH)	=10.000
BLADE TIME (SEC)	=8
BLADES	=100
BONDING TIME (SEC)	=13
MATERIAL (MM)	=-
DATA FILE NAME	=00005
DATA FILE DATE	=08120
DATA FILE HRS	=0.93
DATA FILE SEC	=1.24
STC	=0151 (11+150.0)



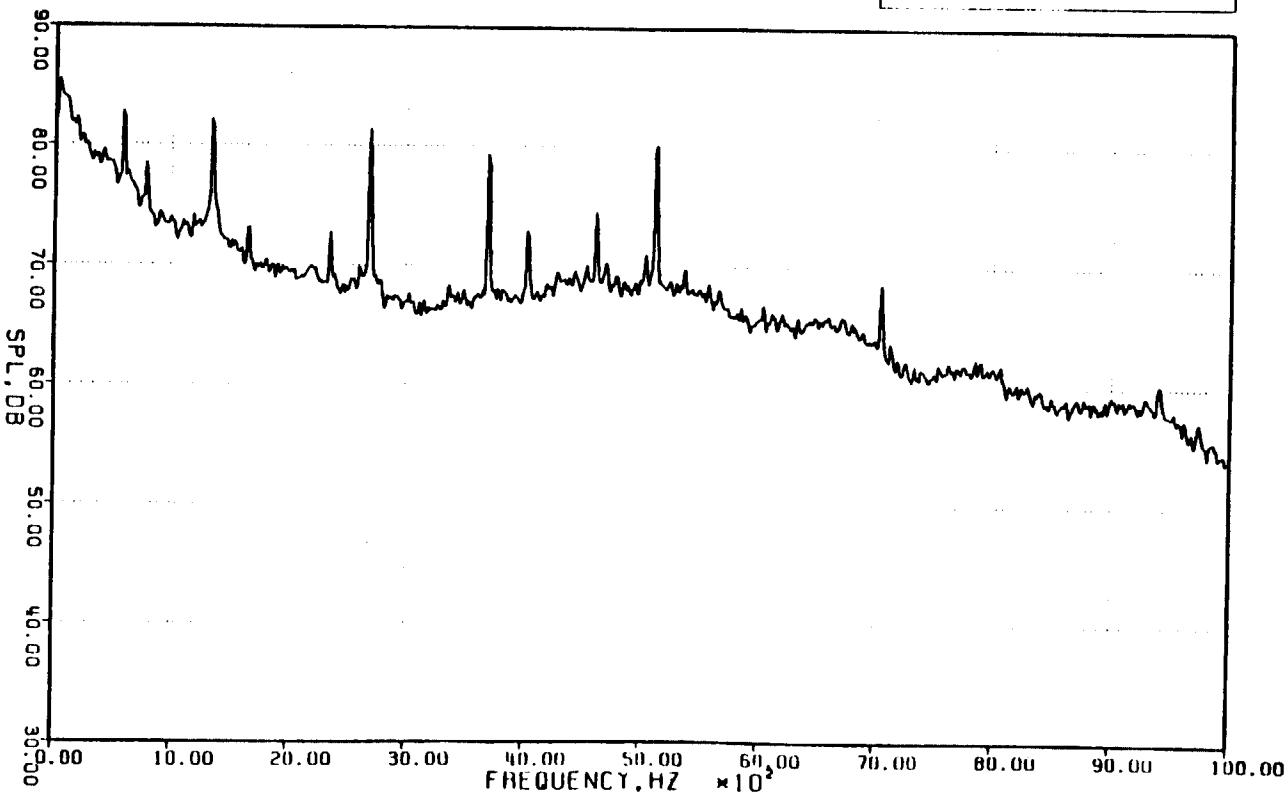
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## Appendix 9.2.5.j

## AVERAGED SPECTRUM

100 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE NO , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2519 RPM, CORE = 11866 RPM

RUN NO.	-11
POINT NO.	-251
DATAFILE NAME.	-010261E.DAT
NO. OF BLADES	-32
TEMP DAY (DEG.F)	-65.0
TEMP NIGHT (DEG.F)	-54.5
BLADE PITCH (deg)	-29.50
BLADE SIZE	-2040
SIGNAL DIA (INCH)	-0.500
SHUTTER TIME (SEC)	-10.000
MICRO TIME (SEC)	-4
ROTATION	-100
NUMBER OF POINTS	-13
MINIMUM (dB) -MAX	-1
MINIMUM (dB) -MAX	-0.0015
MINIMUM (dB) -MAX	-0.01
MINIMUM (dB) -MAX	-0.05
MINIMUM (dB) -REF	-1%
MINIMUM DIST (FT)	-150.0



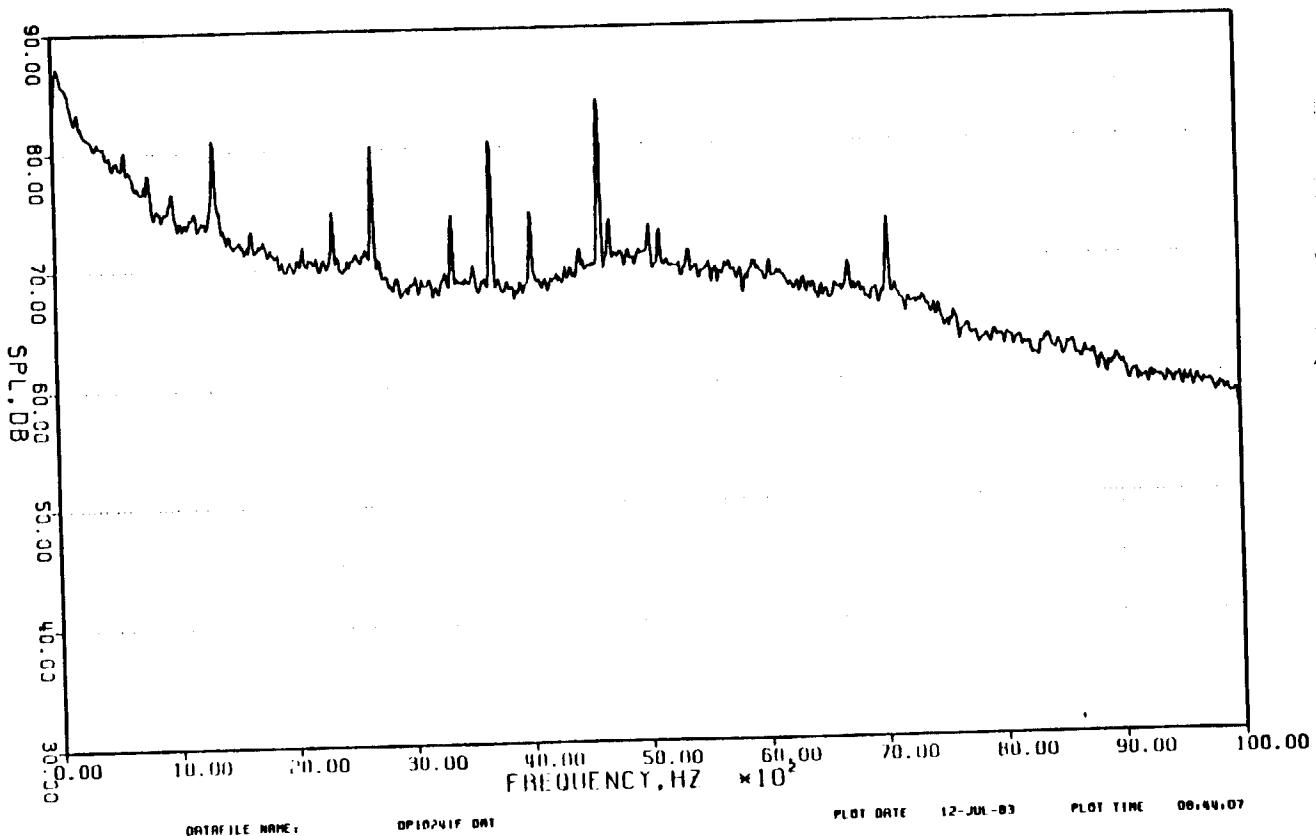
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### Appendix 9.2.5.k

#### AVERAGED SPECTRUM

110 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D . DATE: 8-JUN-83  
TYPE: E315 . 30 IPS  
FAN = 2519 RPM, CORE = 11066 RPM

RUN NO.	=11
POINT NO.	=241
BPF	=134.3
NO. OF BLADES	=32
TIME UNIT (SEC.)	=54.0
TIME UNIT (SEC.)	=54.5
BLADE PULSE TIME	=20.50
BLADE PULSE TIME	=20.60
BLADE PULSE TIME	=25.600
BLADE PULSE TIME	=10.000
BLADE PULSE TIME	=100
BLADE PULSE TIME	=13
SEISMIC UNIT	=1
SEISMIC UNIT	=0.0016
SEISMIC UNIT	=10
SEISMIC UNIT	=0.93
SEISMIC UNIT	=1.74
SEISMIC UNIT	=150.0

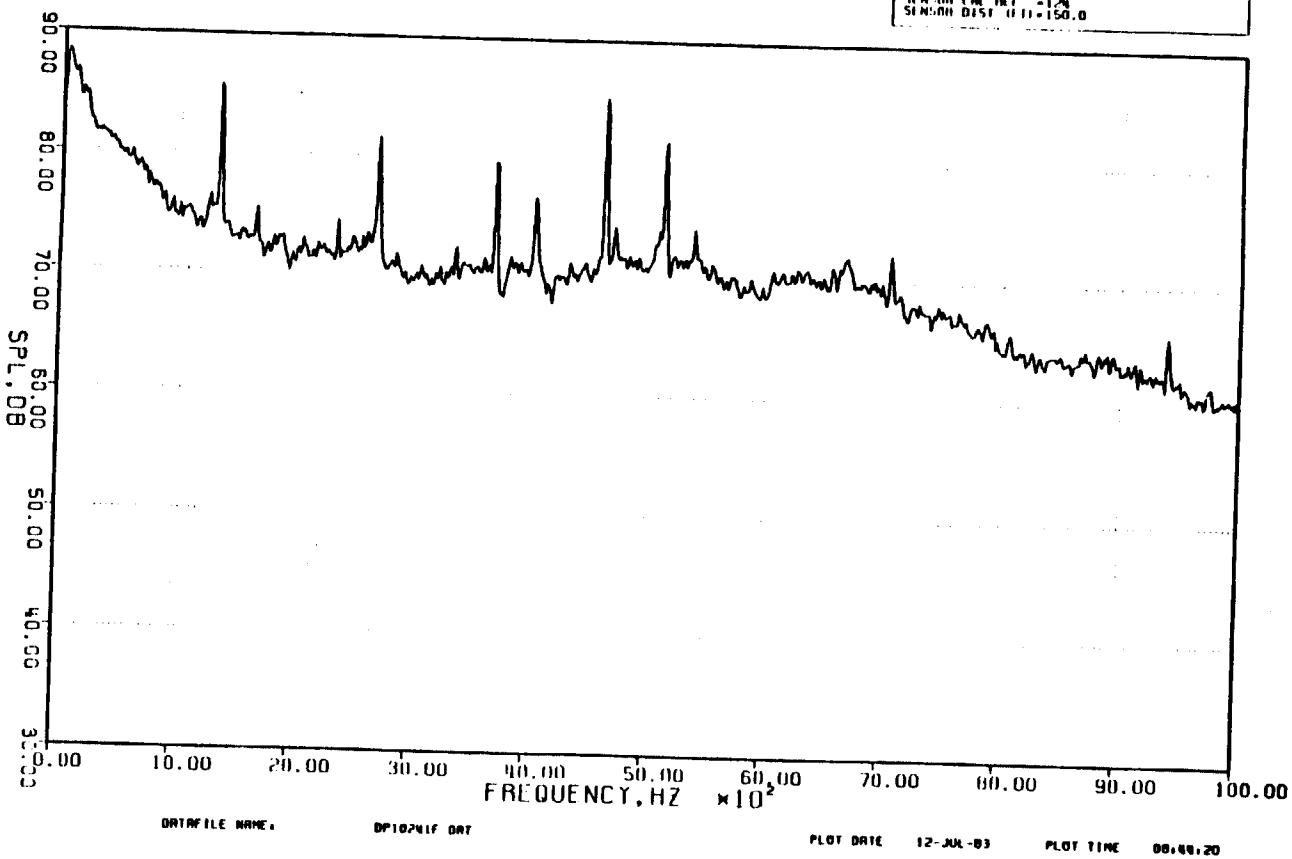


## Appendix 9.2.5.1

## AVERAGED SPECTRUM

120 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TYPE: E315 , 30 IPS  
 FHN = 2519 RPM, CORE = 11866 RPM

NUM NO.	-11
POINT NO.	-241
DPF	-243
NO. OF BLADES	-32
TEMP DRY (DEG.F)	-65.0
TEMP WET (DEG.C)	-54.5
BLADE SPAN (INCH)	-29.50
BLADE SPAN (MM)	-750.00
SIMP RATE (INCH)	-20.000
R/H F/T (INCH)	-10.000
RECORD TIME (SEC)	-8
AV Holes	-100
MINIMUTH (INCH)	-13
MAXMUTH (INCH)	-1
SIMP. CRIT. (RPM)	-00016
SIMP. CRIT. (RPS)	-10
SIMP. CRIT. (RMS)	-0.92
SIMP. CRIT. (INT)	-12%
SIMP. DIST. (FT)	-150.0



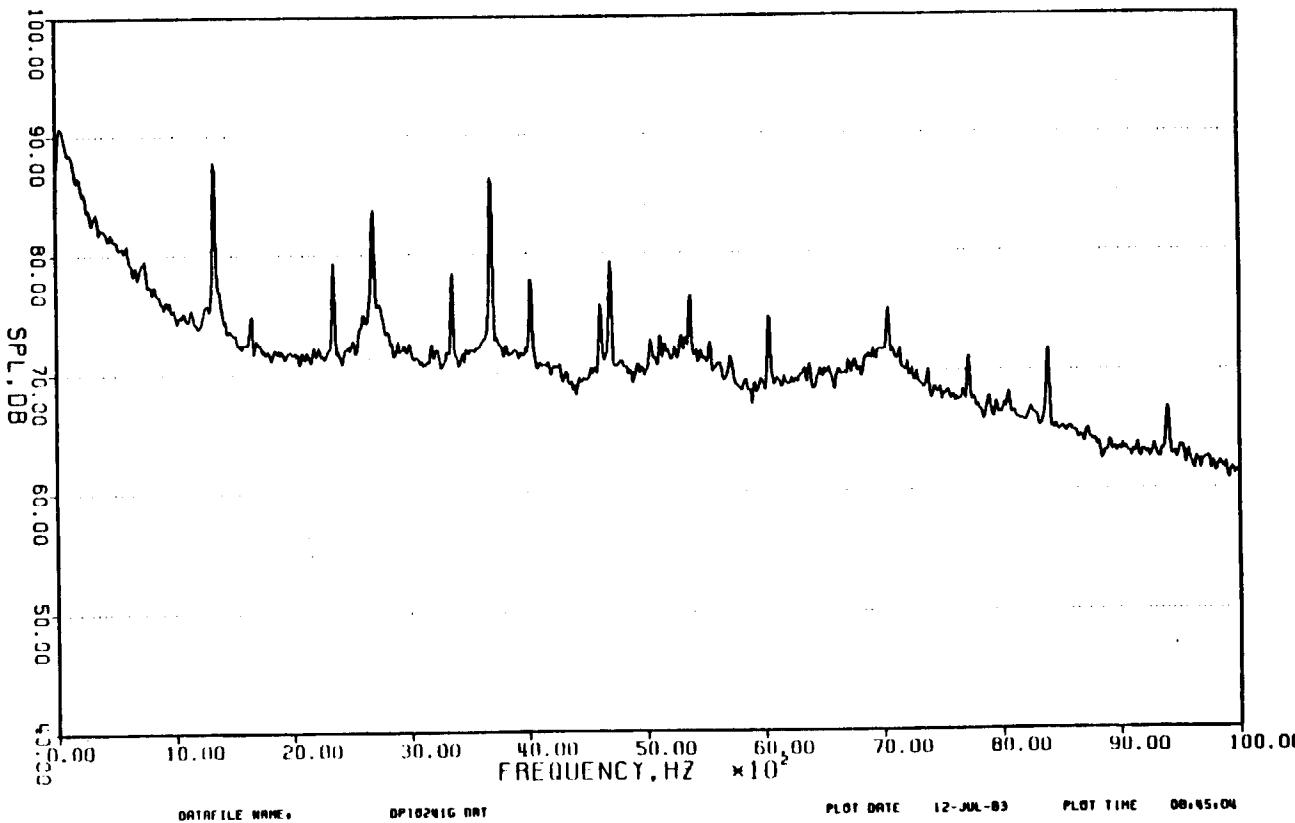
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Appendix 9.2.5.m

AVERAGED SPECTRUM

130 DEG G/P  
 E CUBED PEBBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D, DATE: 8-JUN-83  
 TAPE: E315, 30 IT'S  
 FAN = 2519 RPM, CORE = 11866 RPM

RUN NO.	=11
POINT NO.	=241
RHF	=134.3
NO. OF BLADES	=32
TEMP BHAT (DEG.F)	=65.0
TEMP WET (DEG.F)	=54.5
BLADE PRESSURE	=1.50
BLADE SPAN	=74.00
SUPER RATIO (RHO2)	=25.000
BLADE TIME (SEC)	=0.000
BLADES	=100
BLADE WIDTH (INCH)	=1.3
BLADE VOL (INCH) <sup>3</sup>	=0.0016
SEEDS/CINCH (000)	=10
SEEDS/CINCH (MS)	=0.91
SEEDS/CINCH (REF)	=1.24
SEEDS/DIST (FT)	=150.0



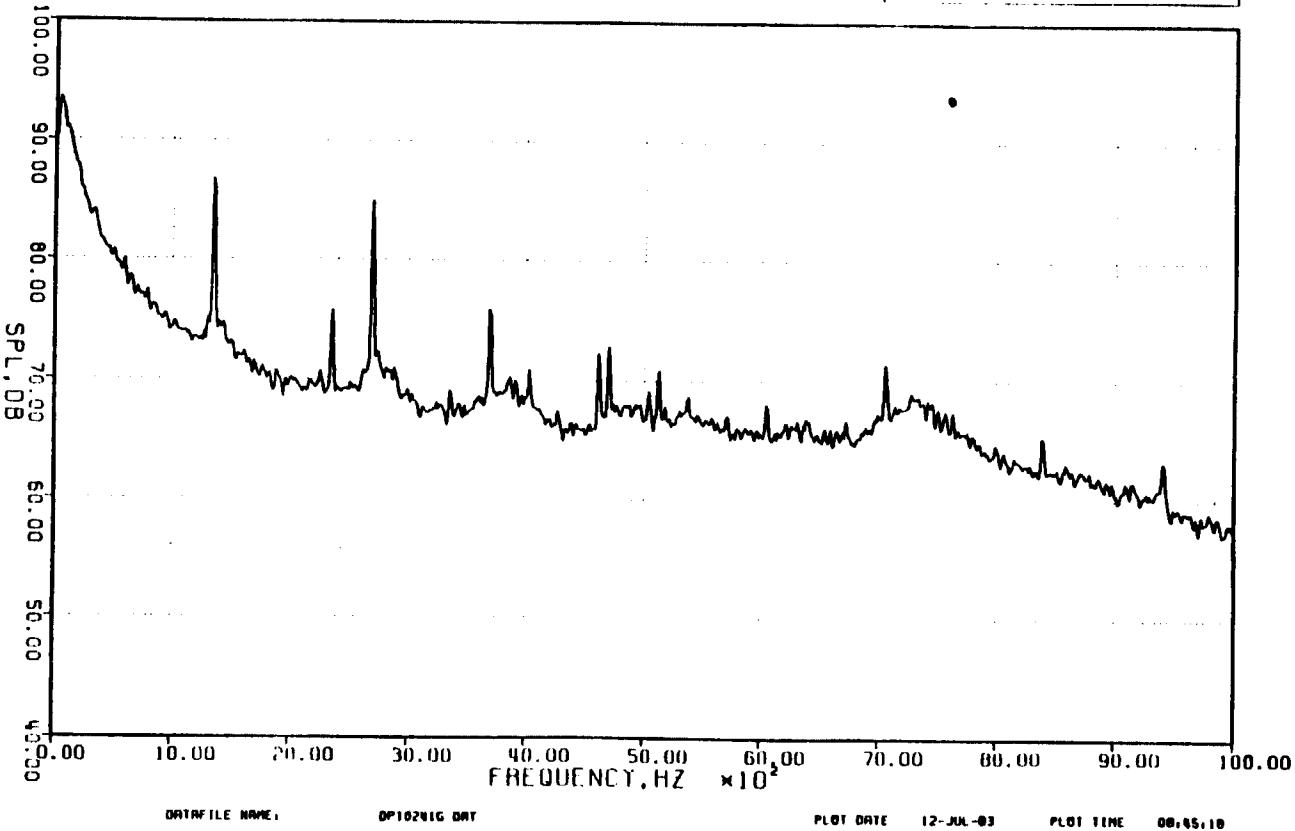
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## Appendix 9.2.5.n

## AVERAGED SPECTRUM

140 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40, DATE: 8-JUN-83  
 TAPE: E315, 30 IPS  
 FAN = 2519 RPM, CURE = 11866 RPM

RUN NO.	= 11
POINT NO.	= 248
HPF	= 140
NO. OF BLADES	= 32
HPF DAT (HZ, F1)	= 65.0
HPF MFT (HZ, F1)	= 56.5
IMPRO PRESS (T/HG)	= 39.50
IMPRO STIFF	= 21000
IMPRO RIGID (INCH)	= 15.000
IMPRO TENS (INCH)	= 10.000
IMPRO TIME (SEC)	= 8
IMPROGES	= 100
IMPROMOTH (HZ)	= 12
IMPROMUL (HZ)	= 1
IMPROSP (HZ)	= 0.0015
IMPRO TBLW (INCH)	= 0.0
IMPRO UNTO RMS	= 0.94
IMPRO UNTO RET	= 1.24
IMPRO DLT (HZ)	= 150.0



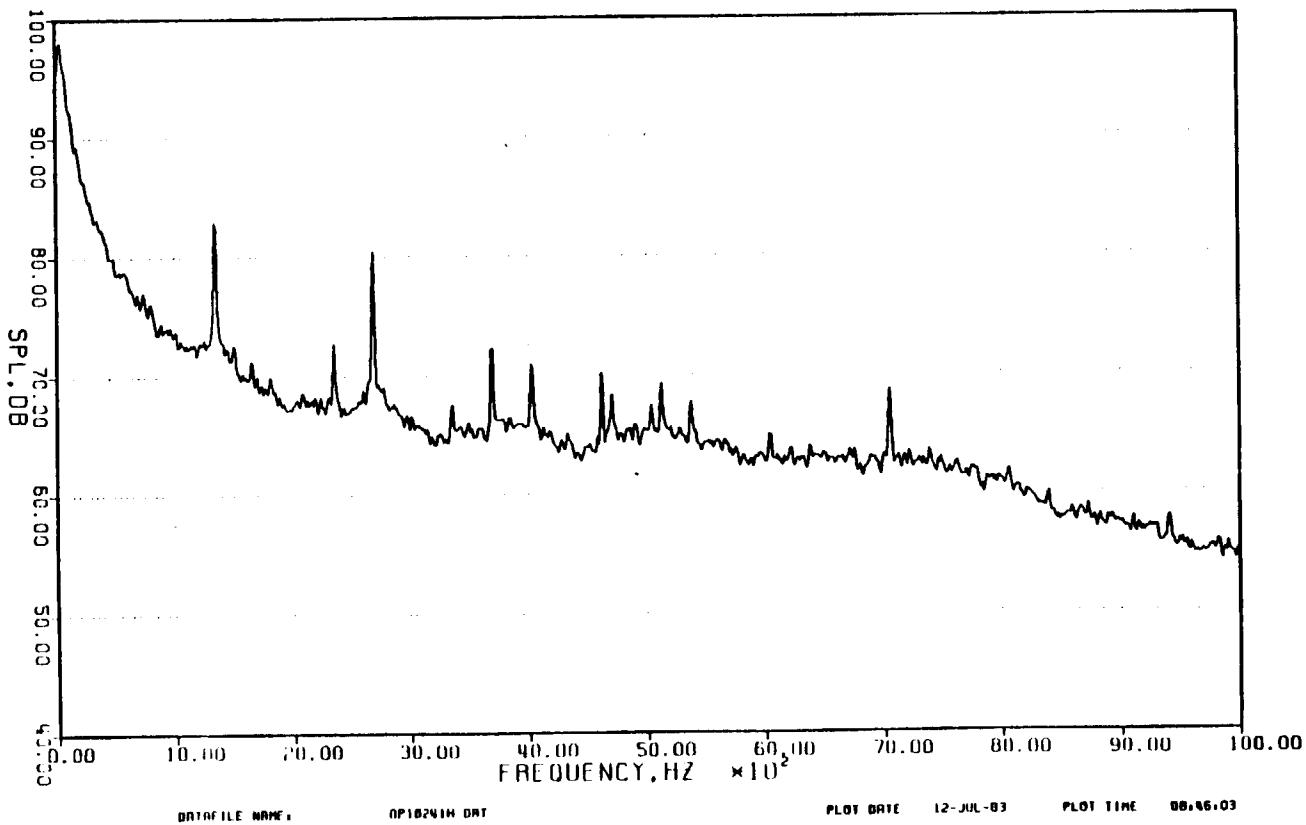
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Appendix 9.2.5.o

AVERAGED SPECTRUM

150 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TRATED  
SITE 40 . DATE: 8-JUN-83  
TAPE: E315 . 30 IPS  
FAN = 2519 RPM, COHE = 11866 RPM

RUN NO.	= 11
POINT NO.	= 241
BPF	= 343
NO. OF BLADES	= 32
TIME ORIG (SEC)	= 65.0
TIME SET (SEC)	= 64.5
ARMED TIME (SEC)	= 64.50
BLADE SPAN (INCH)	= 204.0
SHOOTER SPEED (INCH)	= 25.000
BLADE FREQ (HZ)	= 10.000
ROTATIONAL TIME (SEC)	= 1.000
ROTATION	= 1.00
NUMBER OF BLADES	= 13
WIND DIRECTION (DEG)	= 1
SINE DUE FREQ (HZ)	= 0.0016
SINE DUE DUR (SEC)	= 10
SINE DUE DUR (HZ)	= 0.91
SINE DUE DUR (SEC)	= 1.20
SINE DUE DUR (HZ)	= 150.0



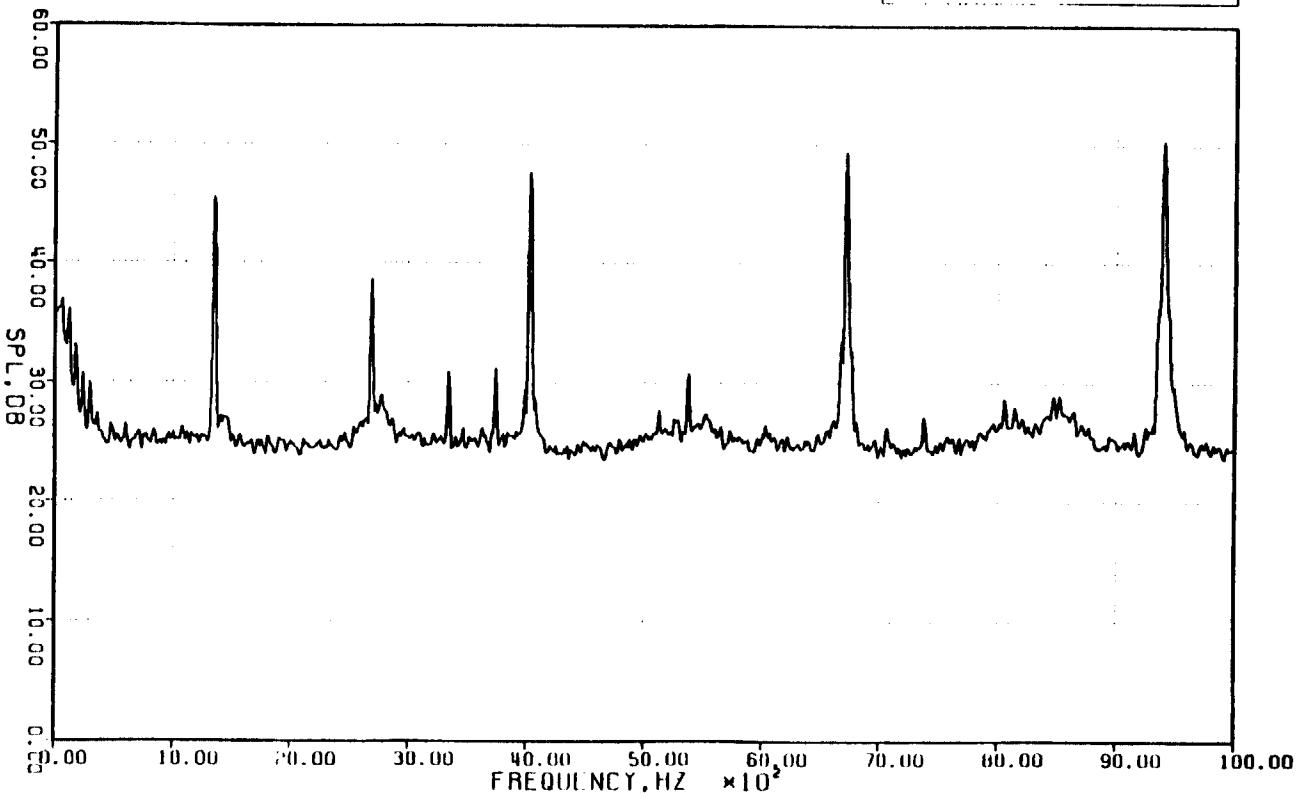
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## Appendix 9.2.5.p

## AVERAGED SPECTRUM

160 DEG C/P  
 E CURED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8 JUN 83  
 TAPE: E315 . 30 IPS  
 FAN = 2519 RPM. CORE = 11866 RPM

RUN NO.	= 11
POINT NO.	= 281
HGT	= 1343
NO. OF BLADES	= 32
TEMP DAT (DEG.F)	= 65.0
TEMP DAT (DEG.C)	= 18.3
WIND FANS (*M/S)	= 2.50
WIND SIZE	= 100
WIND RATE (KHZ)	= 0.500
A.D. (1000) (KHZ)	= 10.000
REFLECT TIME (SEC)	= 0
REFLECT DIST (M)	= 100
REFLECT DTH (M)	= 13
MINIMUM (1) (MM/M)	= 1
SIGNAL PSV/VOLT	= 0.0016
SIGNAL GAIN (DB)	= 10
SIGNAL GAIN (HRS)	= 0.00
SIGNAL GAIN (dB)	= 124
SIGNAL DIST (M)	= 150.0



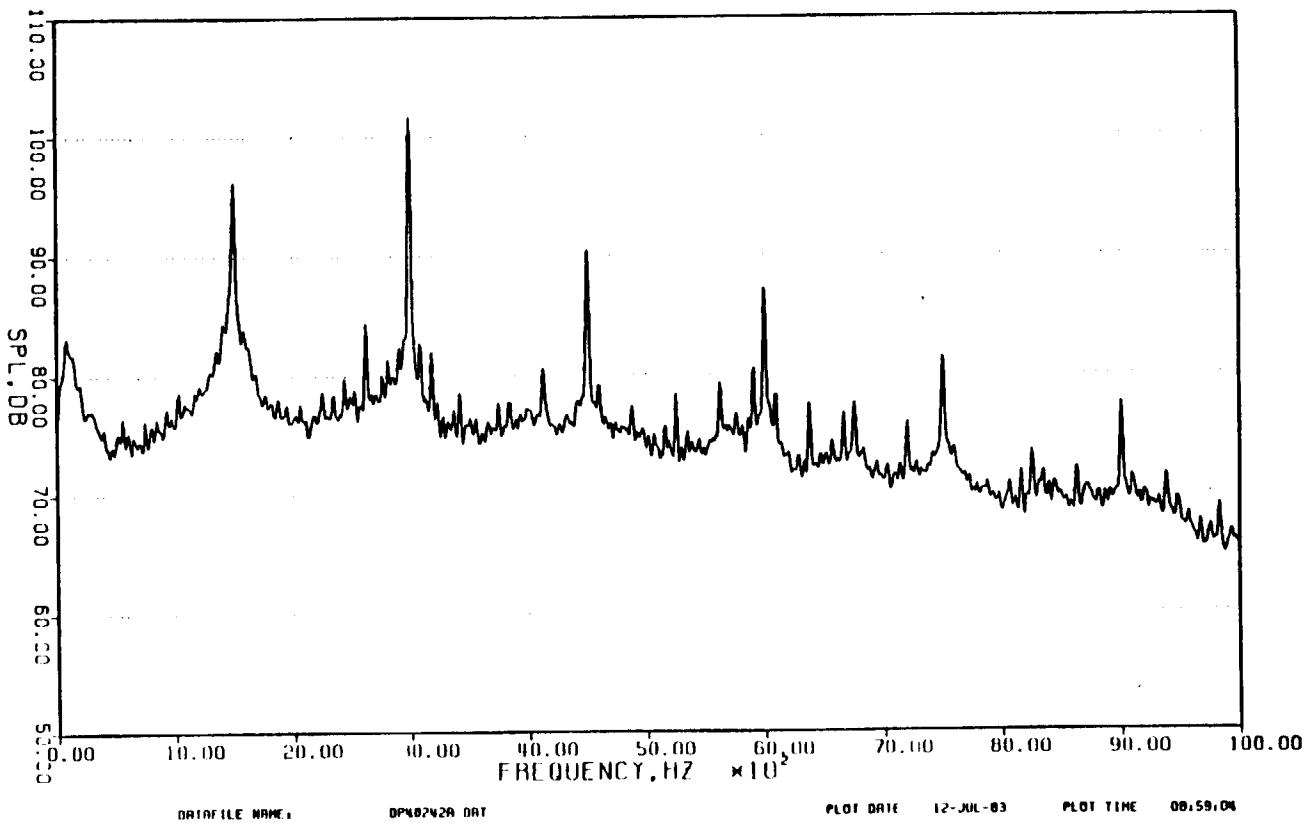
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Appendix 9.2.6.a

AVERAGED SPECTRUM

10 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40, DATE: 8-JUN-83  
 TAPE: E315, 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	= 12
POINT NO.	= 242
SPW	= 1500
NO. OF BLADES	= 32
TEMP DAT (DEG.F)	= 65.0
TEMP WAT (DEG.F)	= 54.5
WIND PRESS (INHG)	= 29.50
BLADE SPAN (INCH)	= 10.000
SHROUD (INCH)	= 25.500
A/F FILTER (INCH)	= 10.000
BLADE TIME (SEC)	= 8
HV RATES	= 100
HVON/HVOFF (HZ)	= 13
HVON/HVOFF (SEC)	= 0.00016
SINUSOID (DB)	= 10
SINUSOID (A RMS)	= 0.90
SINUSOID (LNU)	= 12%
SENSOR DIST (FT)	= 150.0



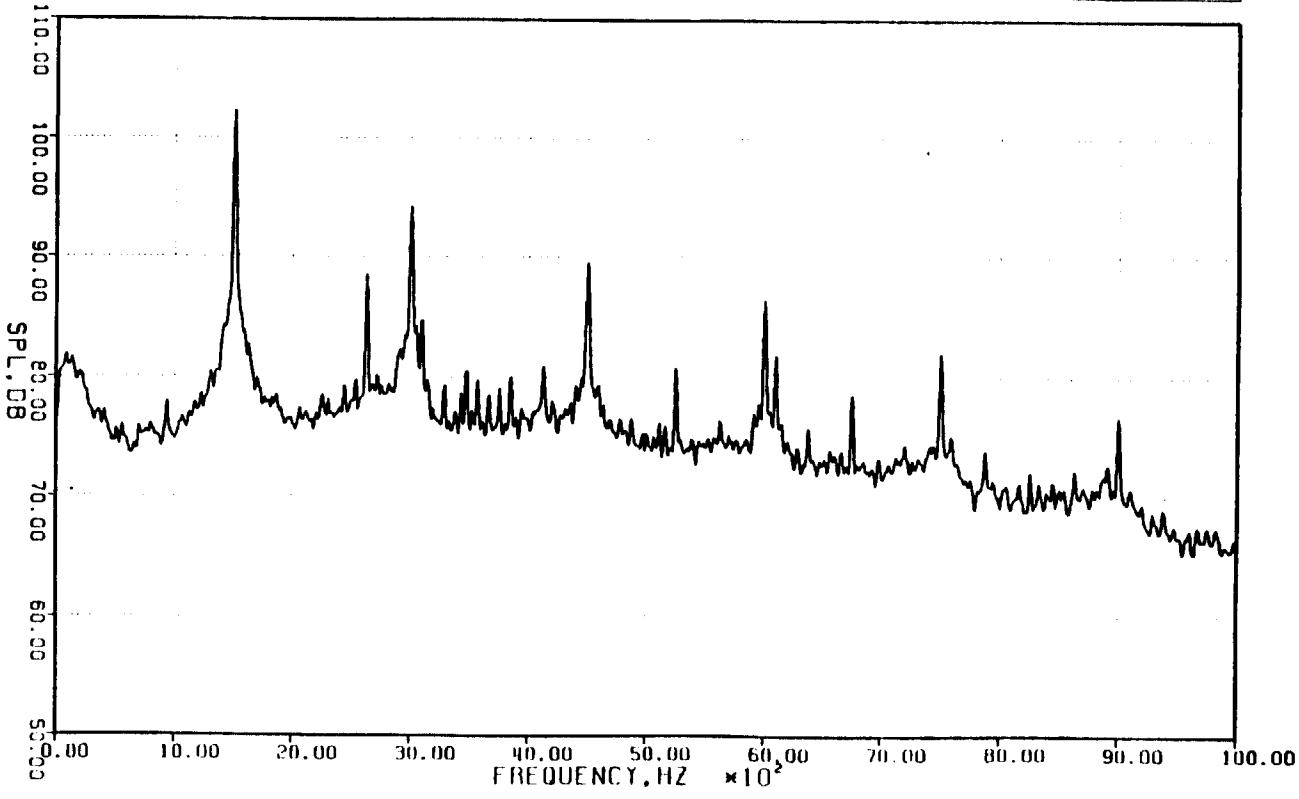
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## Appendix 9.2.6.b

## AVERAGED SPECTRUM

20 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	-12
POINT NO.	-242
PPM	-500
NO. OF BLADES	-3
TEMP. INT. (deg.F)	-66.0
TEMP. INT. (deg.C)	-18.5
BINN. PER SS (deg)	-24.50
BLOCK SIZE	-2048
SLOW. SENS. (kHz)	-70.600
REF. INT. (kHz)	-0.0000
RECORD TIME (sec)	-8
AVE HARM.	-100
MINIMUM (Hz)	-10
MAXIMUM (Hz)	-100
SIM. AM. (V/V) - 0.0016	
SIM. AM. (dB) - 10	
SIM. AM. (dB RMS) - 0.99	
SIM. AM. (dB REL) - 24	
SIM. AM. (dB) - 150.0	



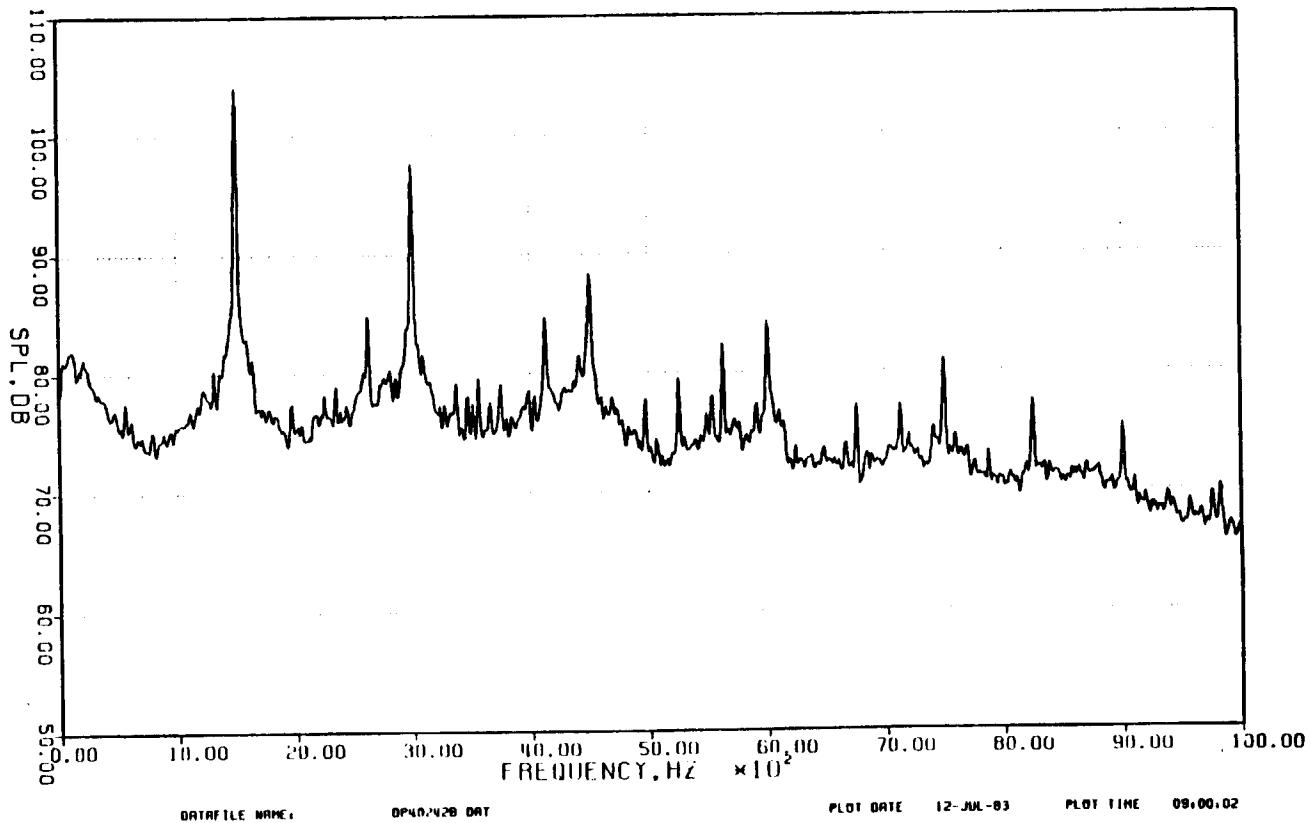
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Appendix 9.2.6.c

AVERAGED SPECTRUM

30 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D , DATE: 8-JUN-83  
TAPE: E315 , 30 IPS  
FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	-12
POINT NO.	-242
SPOT	-1500
NO. OF BLADES	-3
FAN DRY (DEG.F)	-65.0
FAN WET (DEG.F)	-54.5
DRIVE PIN(S) (deg)	-21.50
DRIVE PIN(S) (deg)	-20.50
DRIVE RATIO (MHz)	-21.600
DRIVE RPM (MHz)	-0.000
DRIVE TIME (sec)	-0.000
DRIVE VOLTAGE	-1.000
DRIVE WINDING (MHz)	-1.0
MEASURED (Hz)	-1.0
MEASURED (Hz)	-1
MEASURED (Hz)	-0.0016
MEASURED (Hz)	-0.001
MEASURED (Hz)	-0.40
MEASURED (Hz)	-0.4
MEASURED (Hz)	-0.0



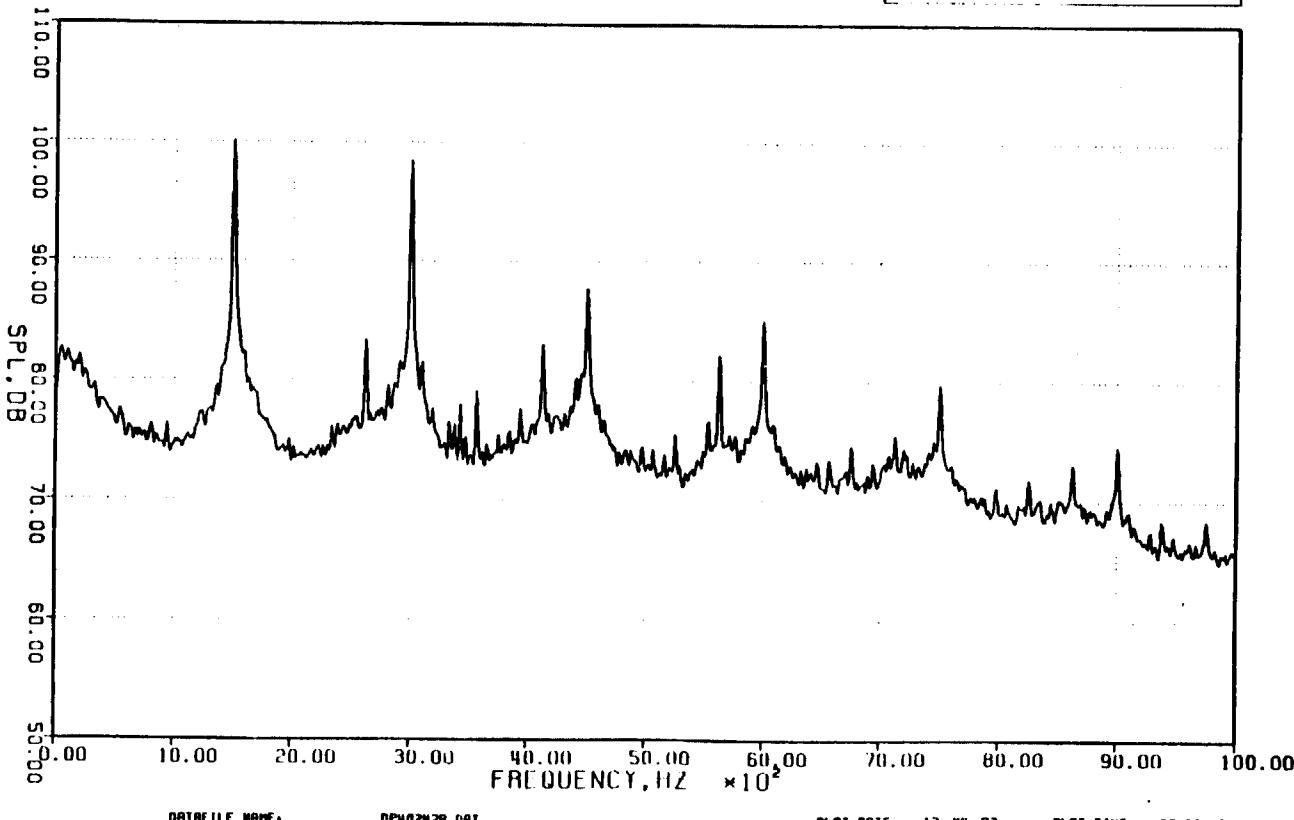
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## Appendix 9.2.6.d

## AVERAGED SPECTRUM

40 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	-12
POINT NO.	-242
WT.	-1500
NO. OF BLADES	-25
TEMP HLT (DEG.F)	-56.5
TEMP HLT (DEG.C)	-29.50
BWHP PRESS (PSI)	-29.50
BLOCK SIZE	-2048.00
SIMP. ORDER (MHZ)	-25.000
DATA FILTER (MHZ)	-10.000
OL (RAD TIME (SEC))	-
OL (RAD) (SEC)	-100
DINNOMIDM (MHZ)	-13
WINDOW (1-10MHZ)	-1
SEN-DIM (PSI/VOLT)	-0.0016
SEN-DIM (VOLT)	-10
SEN-DIM (10 MHZ)	-93
SEN-DIM (KHZ)	-1.4
SEN-DIM (100)	-150.0



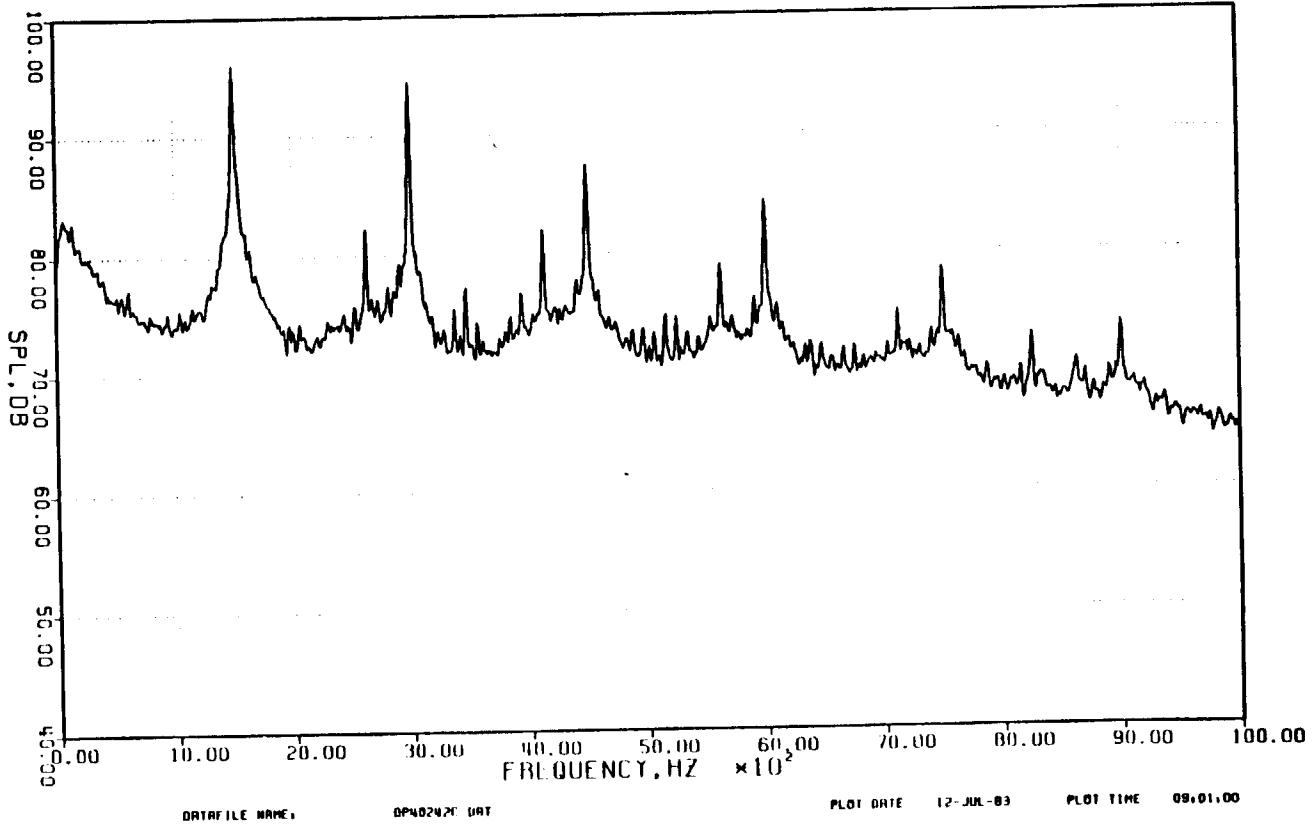
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Appendix 9.2.6.e

AVERAGED SPECTRUM

50 DEG C/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D , DATE: 8-JUN-83  
TAPE: E315 , 30 IPS  
FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	=12
POINT NO.	=242
OPF	=1500
NO. OF BLADES	=32
TEMP INT (DEG.F)	=65.0
TEMP INT (DEG.C)	=18.3
BINNO PRESS (PSIG)	=29.50
BINNO PRESS (KPA)	=200.00
SUPER. RATE (KHZ)	=25.000
DATA RATE (KHZ)	=10.000
RELOAD TIME (SEC)	=8
OVERHEADS	=100
BINWIDTH (HZ)	=13
WINDOW (A-HARM)	=1
SENS001 (A11) (DB)	=-0.0016
SENS002 (A11) (DB)	=-10
SENS003 (A11) (DB)	=-0.93
SENS004 (A11) (DB)	=-1.74
SENS005 (A11) (DB)	=-150.0

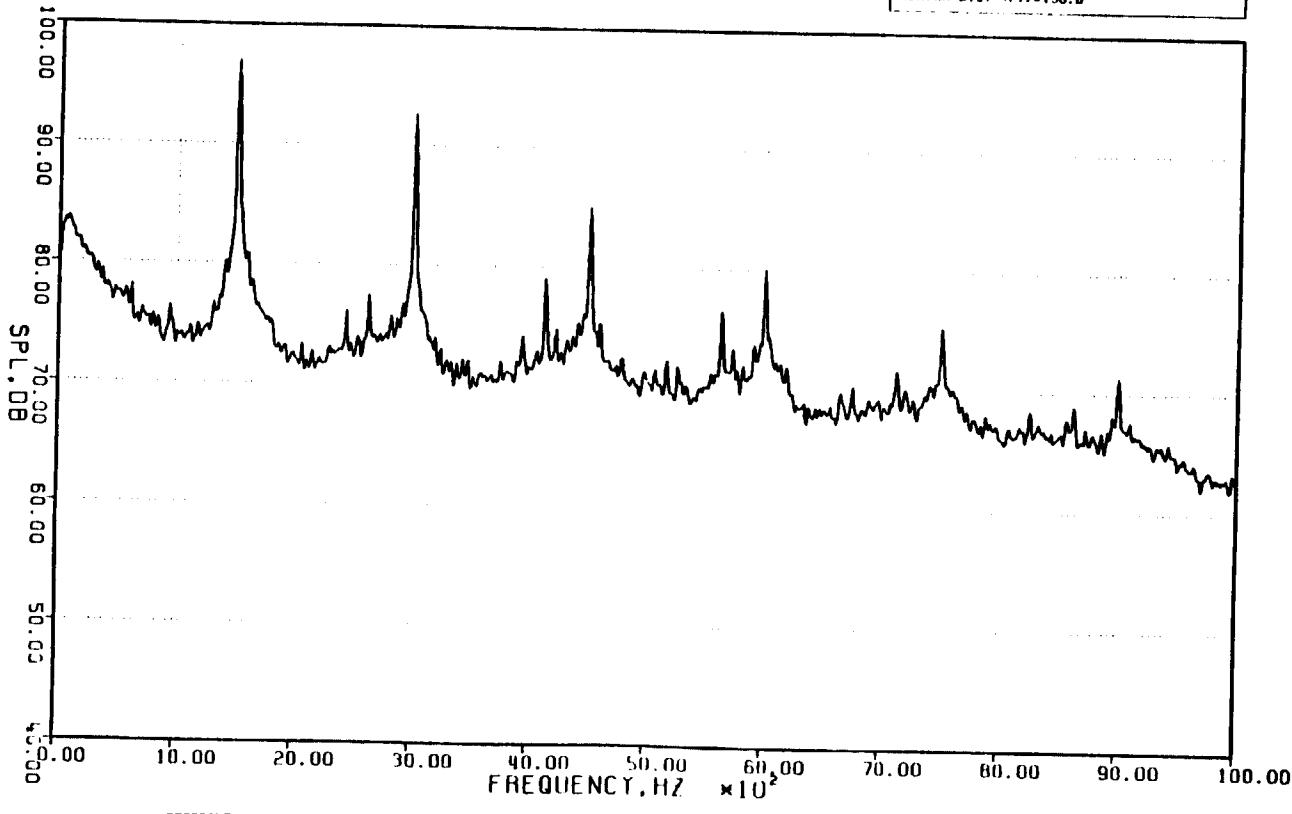


## Appendix 9.2.6.f

## AVERAGED SPECTRUM

60 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	=12
POINT NO.	=252
BPF	=1500
NO. OF BLADES	=1500
TEMP DAY (DEG.F)	=65.0
TEMP WT (DEG.F)	=54.5
BINDED FINESS ("NG")	=29.50
WHEEL SIZE	=2048
SAMPLE RATE (HZ)	=25.600
A/D FILTER (HZ)	=10.000
INT. PERIOD (SEC.)	=4
BLADES	=100
BINDED (HZ)	=13
BLADES (1-BINDED)	=1
SEISMIC ZONE (VOL)	=0.0016
SEISMIC LOAD (DP)	=10
SEISMIC CAR (HMS)	=0.81
SEISMIC CAR (IN)	=124
SEISMIC DIST (FT)	=150.0



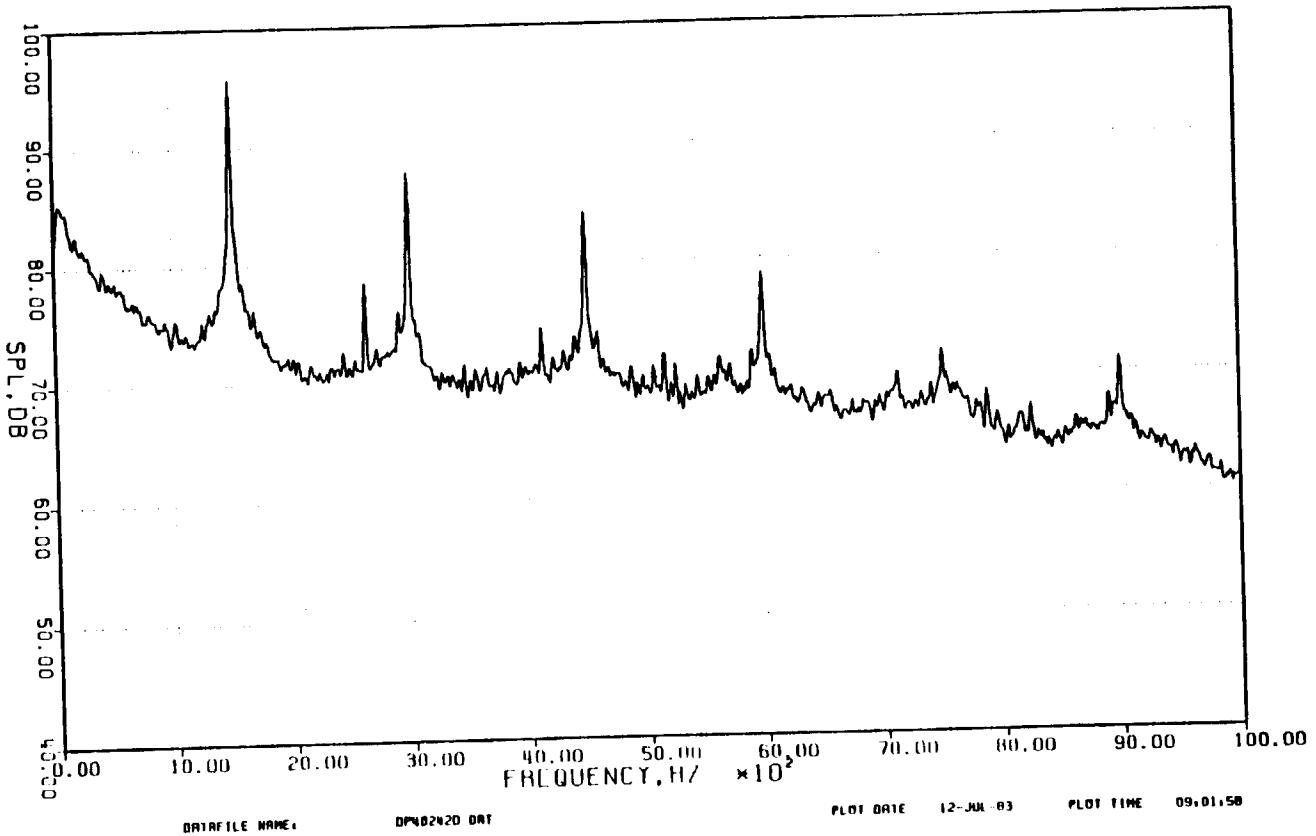
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Appendix 9.2.6.g

AVERAGED SPECTRUM

70 DEG G/P  
 E CUBED PEBBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	-12
POINT NO.	-262
REF	-1500
NO. OF SPECTRUM	-1
TIME DAT (DEG.F)	-65.0
TIME MDT (DEG.F)	-54.5
HORN PIN SG (deg)	-29.50
HORN PIN SIZE	-2048
SUMP RATIO (KOHM)	-75.600
D. O. FILTER (KOHM)	-10,000
DET. TIME (SEC)	-1.0
DET. HOLE S	-100
DET. HOLE DIA	-13
MINIMUM 11-HARMONIC	-1
SENS. 0.01/VOLT	-0.0016
SENS. 0.01/MV	-10
SENS. 0.01/10.005-1.92	-



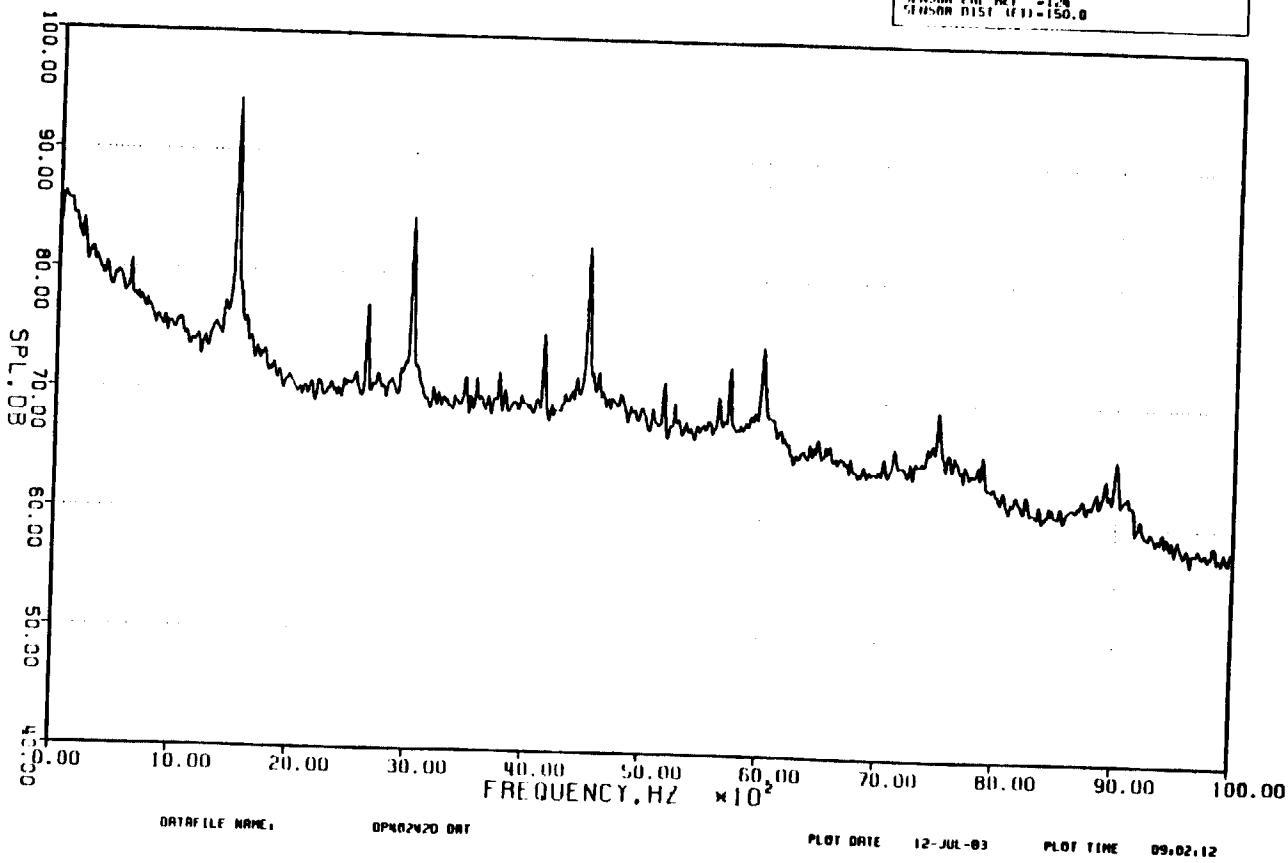
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## Appendix 9.2.6.h

## AVERAGED SPECTRUM

80 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2812 RPM. CORE = 112200 AP

RUN NO.	-12
POINT NO.	-262
BPF	-1500
NO. OF BLADES	-32
BLADE DAY (DEC.F)	-65.0
BLADE DAY (DEC.F)	-54.5
BLADE PIV 55 (NG)	-50
BLADE L17F	-2000
BLADE WIDTH (HZ)	-25.600
BLADE WIDTH (HZ)	-10.000
BLADE TIME (SL)	-8
BLADE VEL	-100
BLADE WIDTH (HZ)	-13
BLADE WIDTH (HZ)	-13
SENR-BIN (ST/VIN) T	-0.0016
SENR-BIN (RMS) -10	
SENR-BIN (RMS) -0.91	
SENR-BIN (RMS) -124	
SENR-BIN (V/I)	-150.0



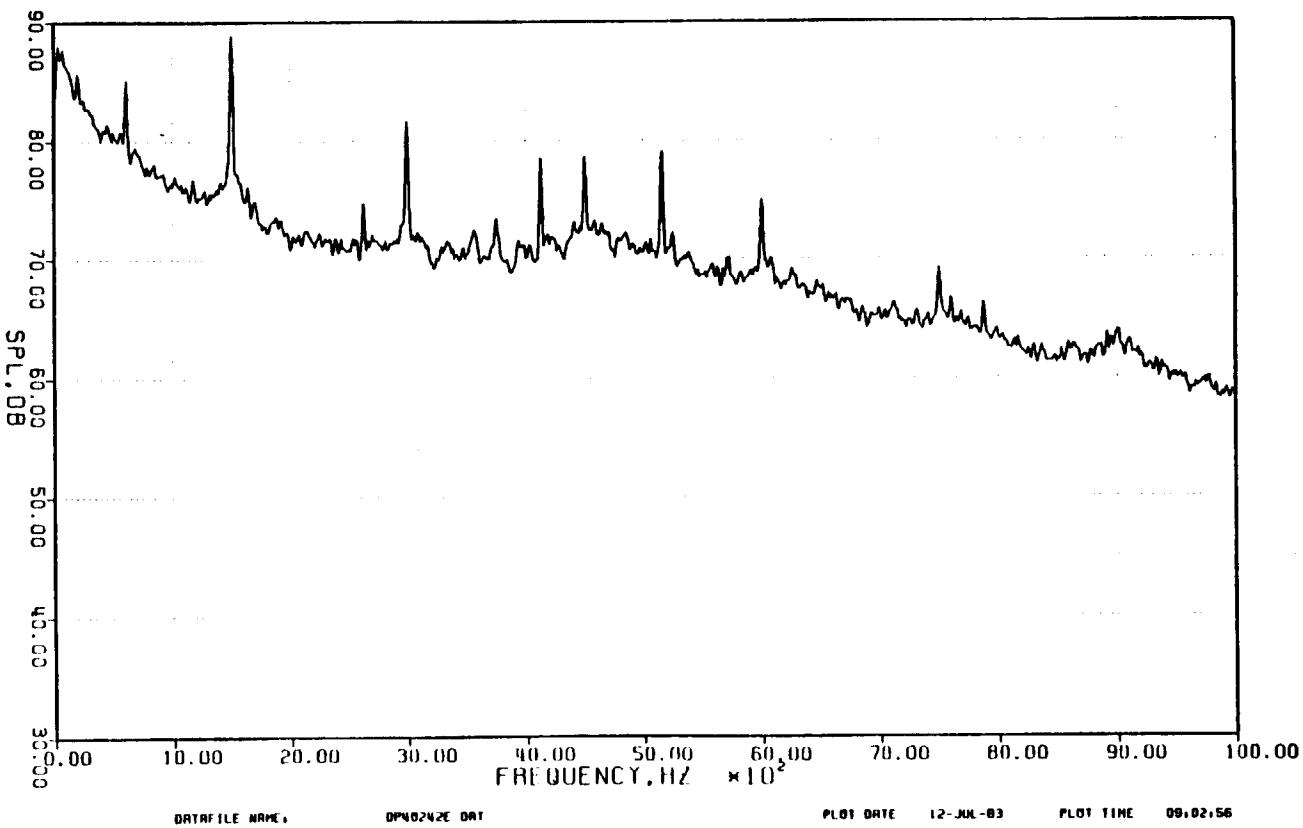
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### Appendix 9.2.6.1

#### AVERAGED SPECTRUM

90 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D , DATE: 8 JUN-83  
TAPE: E315 , 30 IPS  
FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	=12
POINT NO.	=242
BPF	=1500
NO. OF BLADES	=2
TIMP DRY (DEG.F)	=65.0
TIMP WET (DEG.F)	=54.5
DIAH PHESS (deg)	=29.50
BLADE SIZE (deg)	=204.0
SAMP RATE (HZ)	=25.600
R/R (LEVEL (HZ))	=10.000
REF. LOAD (LINE (SEC))	=0
AVG. HOURS	=100
BINWIDTH (HZ)	=13
WINDOW (1-HANN)	=1
SIN/NOIS PSV/VNL	=0.0016
SIN/NOIS GAIN (DB)	=10
SIN/NOIS CRTR RMS	=0.93
SIN/NOIS CRTR AVG	=124
SIN/NOIS DIST (FT)	=150.0

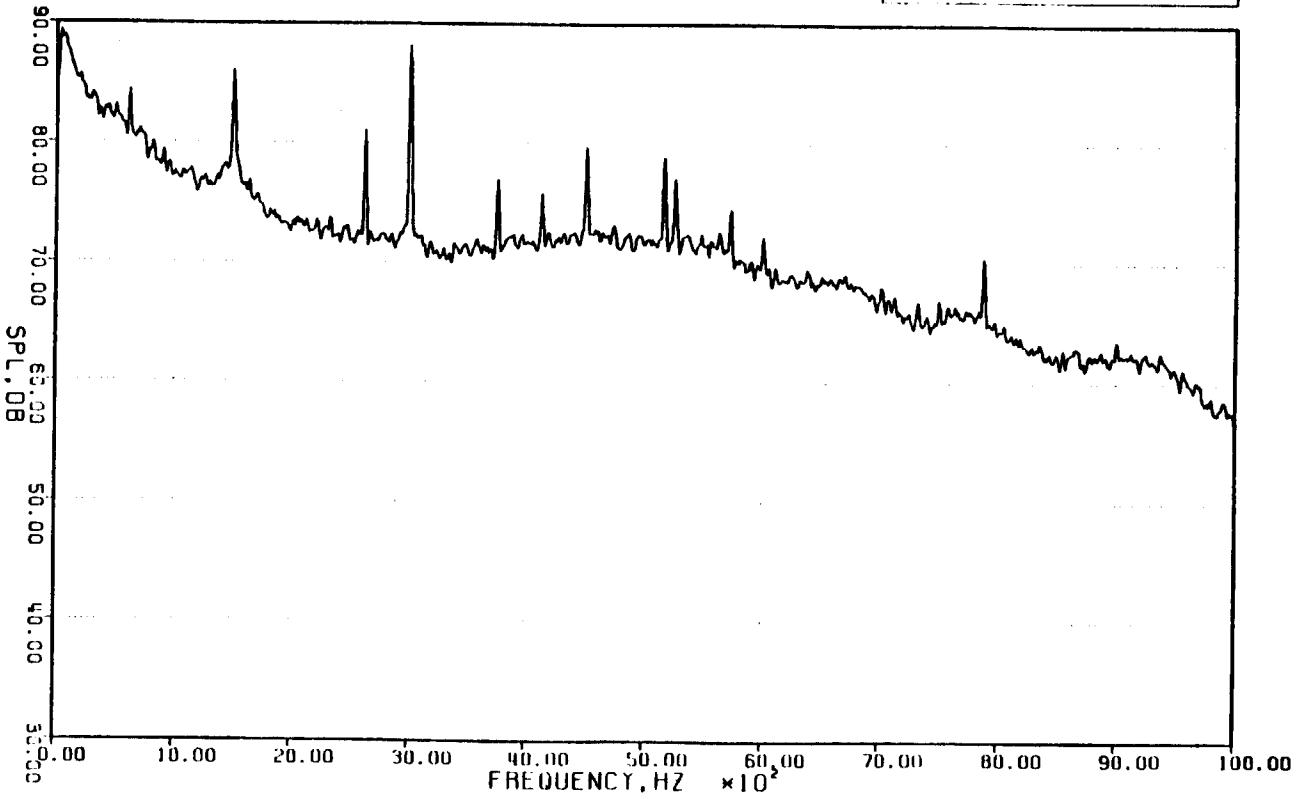


## Appendix 9.2.6.j

## AVERAGED SPECTRUM

100 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	12
POINT NO.	282
DATE	1500
NO. OF BLADES	32
TEMP. DRY (DEG.F)	66.0
TEMP. WET (DEG.F)	54.5
BINAR PRESS (INHG)	29.50
BINAR RHO (LB/INCH <sup>3</sup> )	0.0704
SAMP RATE (KHZ)	24.000
A/D (11 BIT) (HZ)	10.000
REC(ND) TIME (SEC)	0
AVE HOURS	100
BINNAD(100)	13
WIND SPEED (MPS)	0
SENROR VST(VOL)	0.0015
SENROR GRIN (DB)	0
SENROR GRIN RMS	0.85
SENROR GRN MFT	-12%
SENROR DISI (FT)	150.0



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PLOT DATE 12-JUL-83

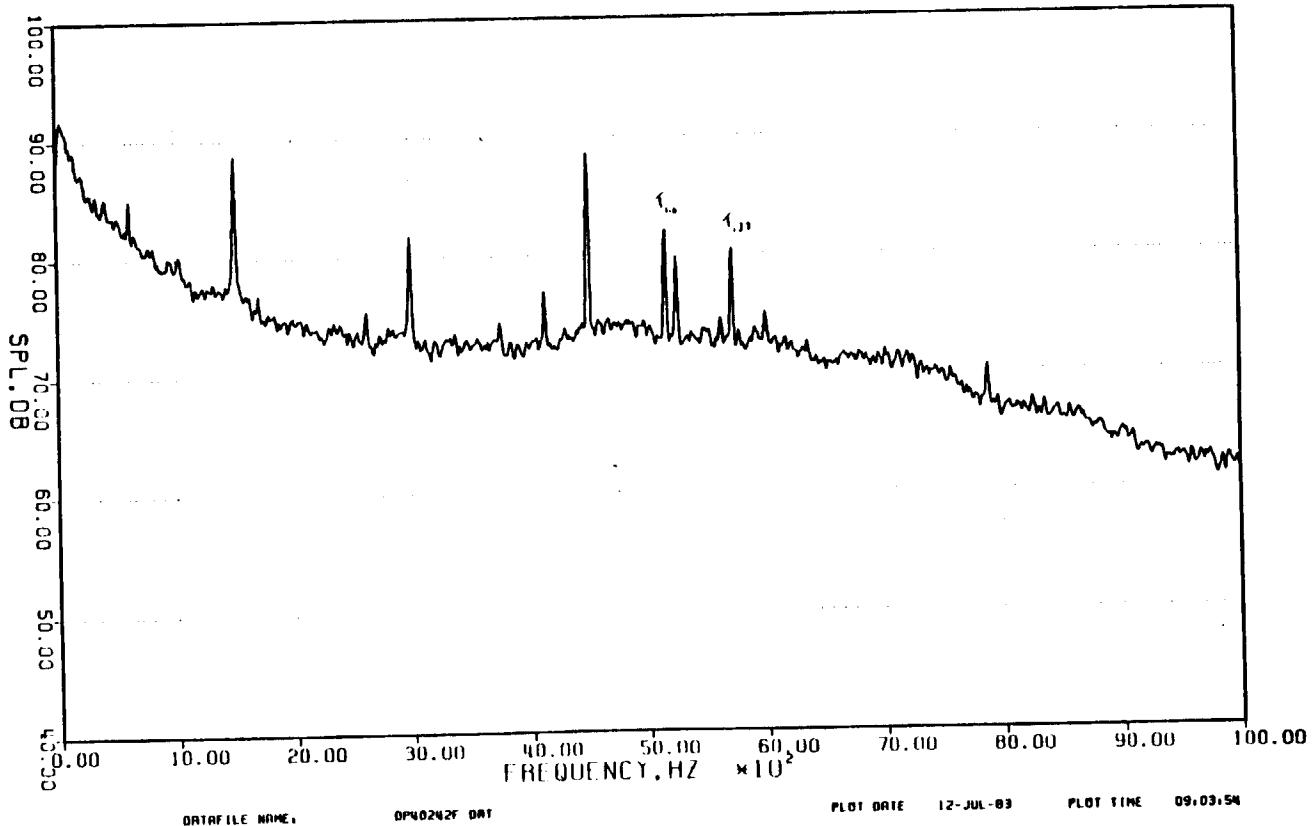
PLOT TIME 09.03.10

Appendix 9.2.6.k

AVERAGED SPECTRUM

110 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	= 12
POINT NO.	= 262
DATE	= 1500
NO. OF BLADES	= 32
TEMP DRY (DEG.F)	= 65.0
TEMP WET (DEG.F)	= 54.5
BINN PRESS (PSI)	= 20.50
BINN K SIZE	= 1.0000
SPEC ANG (DEG)	= 70.00
B/N (LITER/KHZ)	= 10.000
PLOT TIME (SEC)	= 8
HV Holes	= 100
MINIMDTB (HZ)	= 1.0
MINMAX (HZ)	= 1.0
SEN.DR.GAIN (DB)	= 0.0016
SEN.DR.GAIN (DB)	= 10
SEN.DR.GAIN RMS	= 0.93
SEN.DR.GAIN	= 124
SEN.DR.DIST (FT)	= 150.0



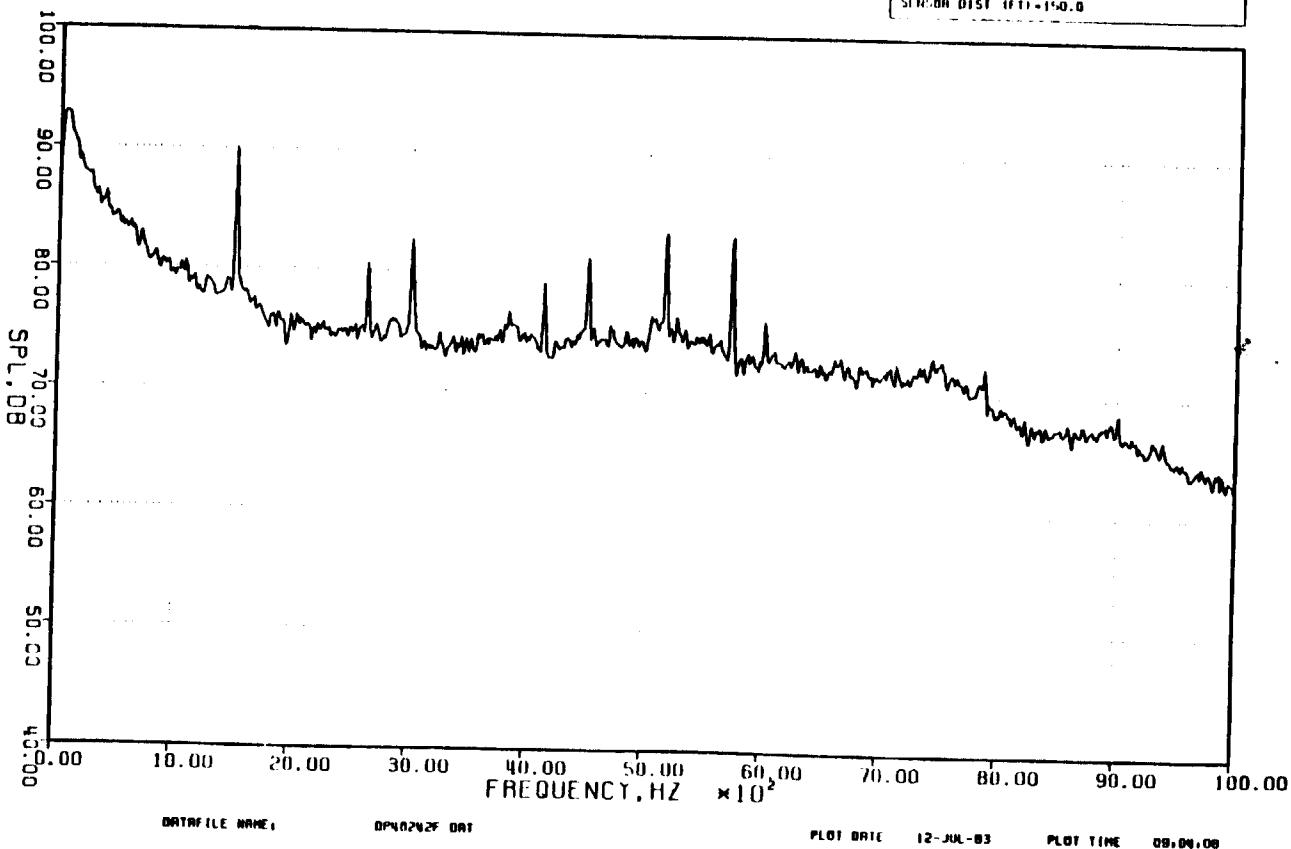
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## Appendix 9.2.6.1

## AVERAGED SPECTRUM

120 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	=12
POINT NO.	=262
BPF	=1500
NO. OF BLADES	=32
IMP. DAT (DEG.F)	=65.0
IMP. PHS (DEG.F)	=96.9
BLDG. PHS (DEG.F)	=100.0
BLDG. SIZE	=2048
SIMP. ANTE. (INCH)	=35.600
A/D FILTER (INCH)	=10.000
REF. DROPOFF (SEC)	=0
REF. HOLE	=100
REF. WIDTH (INCH)	=1.3
MINIMUM (1-HARMONIC)	
SEN. OR CST/VOL 1	=0.0016
SEN. OR GAIN (DB)	=10
SEN. OR CR18 RMS	=0.92
SEN. OR CR18 REF	=124
SEN. OR DIST (FT)	=150.0



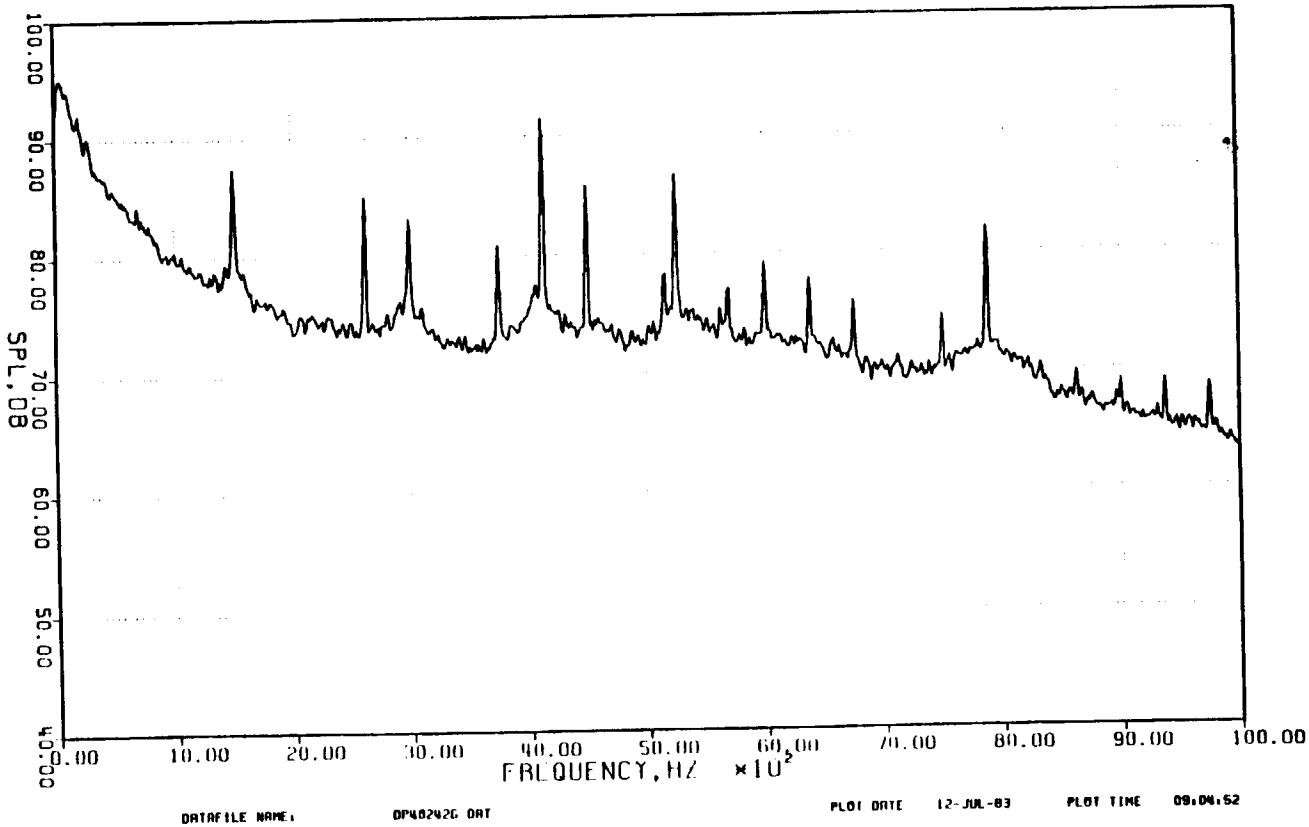
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Appendix 9.2.6.m

AVERAGED SPECTRUM

130 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 6-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	=12
POINT NO.	=242
BDF	=1500
NO. OF BLADES	=32
TEMP INLET (DEG F)	=65.0
TEMP OUTLET (DEG F)	=24.54
BINNIN PH 55 T/HQ1=24.50	
BINNIN PH 55 T/HQ2=24.50	
SIMP. RATE (MHZ)	=25.000
AVG. TIME (SEC)	=10.000
RECORD TIME	=8
RECORD HOURS	=100
RECORD MINUTES	=13
RECORD SECONDS	=1
SEN:01 PS1/YD1	=0.0016
SEN:01 CR1W (000)	=0
SEN:01 CR1B (005)	=0.91
SEN:01 CH1 RET	=124
SEN:01 D151 (71)	=150.0



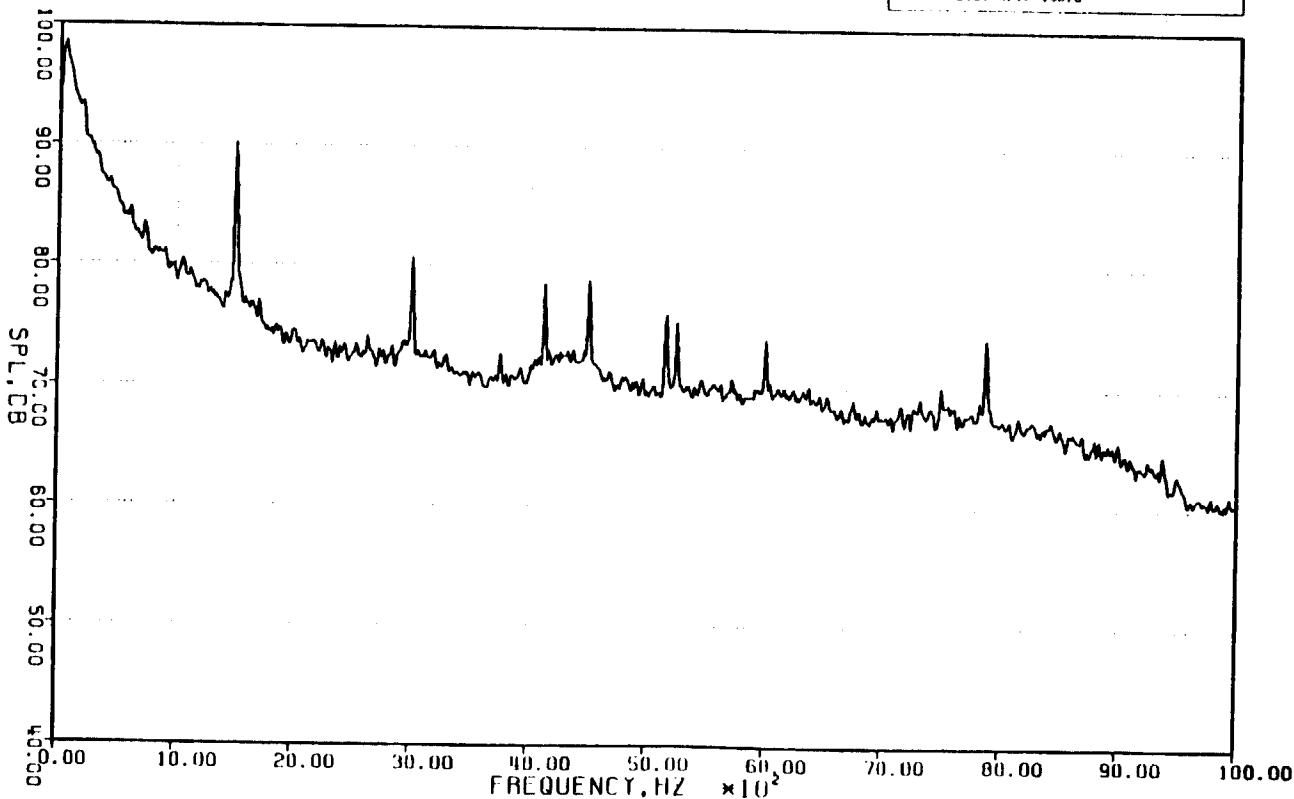
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## Appendix 9.2.6.n

## AVERAGED SPECTRUM

140 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-03  
 TAPE: E315 . 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	=12
POINT NO.	=242
DPF	=500
NO. OF BLADES	=32
TEMP DRY (DEG.F)	=65.0
TEMP WET (DEG.F)	=54.6
BINIC PRESS (HGS)	=29.50
BINIC SIZE	=20MB
SIM. DYN. INHZ	=20.000
DATA FILTER (INHZ)	=0.000
REF. DYN. TIME (SEC)	=8
MV. RIGID S	=100
MINIMUM(DT) (INHZ)	=13
MINIMUM(DT)-MAX(MV)	=1
SIM. DR. (MV/DT)	=0.0049
SIM. DR. (MV/DT)	=0.94
SIM. DR. (MV/DT)	=1.24
SIM. DR. D1ST (DT)	=150.0



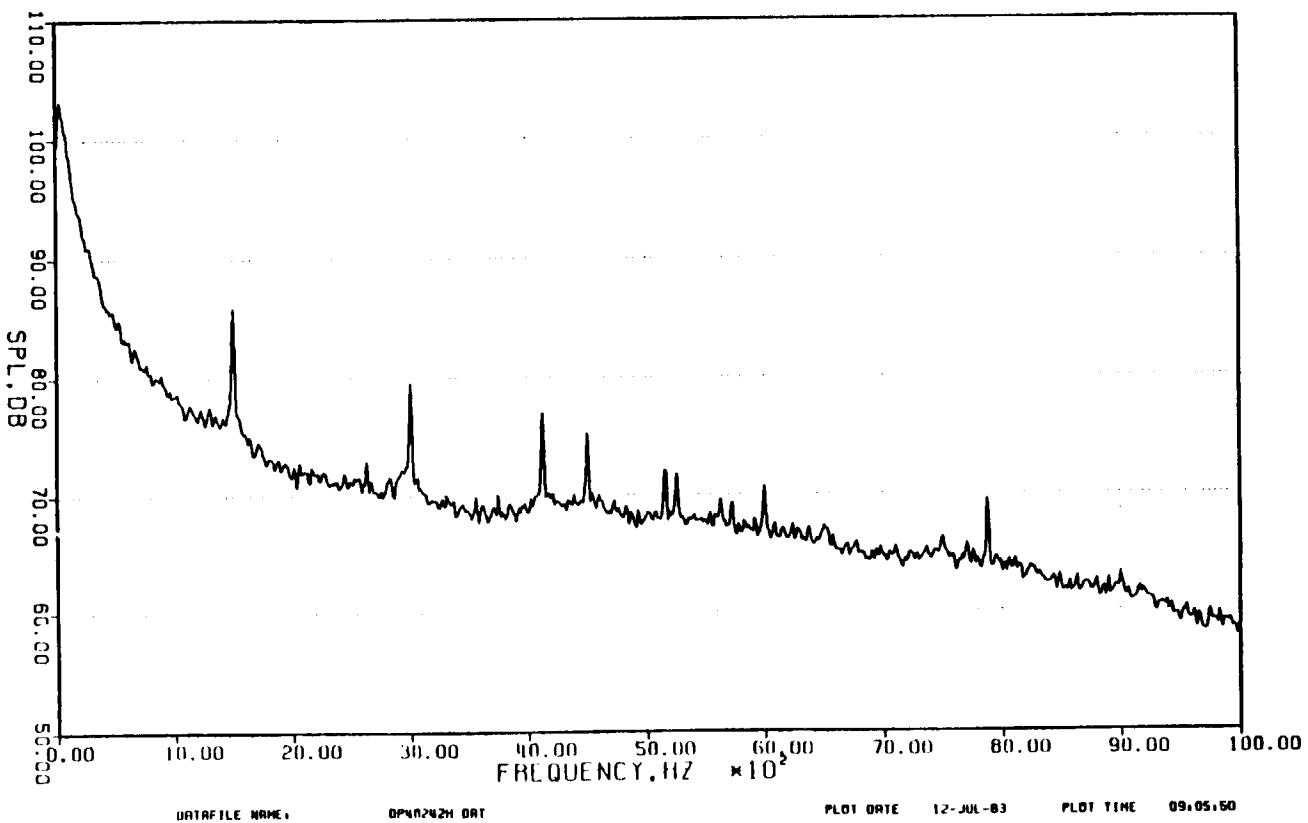
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### Appendix 9.2.6.o

#### AVERAGED SPECTRUM

150 DEG C/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D , DATE: 8-JUN-83  
TAPE: E315 , 30 IPS  
FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	= 12
POINT NO.	= 244
BLADES	= 1500
NO. OF BLADES	= 32
TEMP OUT (DEG.F)	= 65.0
TEMP INLET (DEG.F)	= 54.5
BARO PRESS (IN HG)	= 29.50
BLADE SIZE (INCH)	= 204.0
BLADE SPACING (INCH)	= 25.000
BLADE LIP TAPER (%)	= 10.000
BLADE TIME (SEC)	= 8
AVERAGES	= 100
MONITORING DIST	= 13
MONITORING MANN	= 1
SENSOR FREQ(VOL)	= 0.0051
SENSOR GAIN (DB)	= 0.0010
SENSOR LATM RMS	= 0.91
SENSOR LATM RMS	= 124
SENSOR DIST (IN)	= 150.0



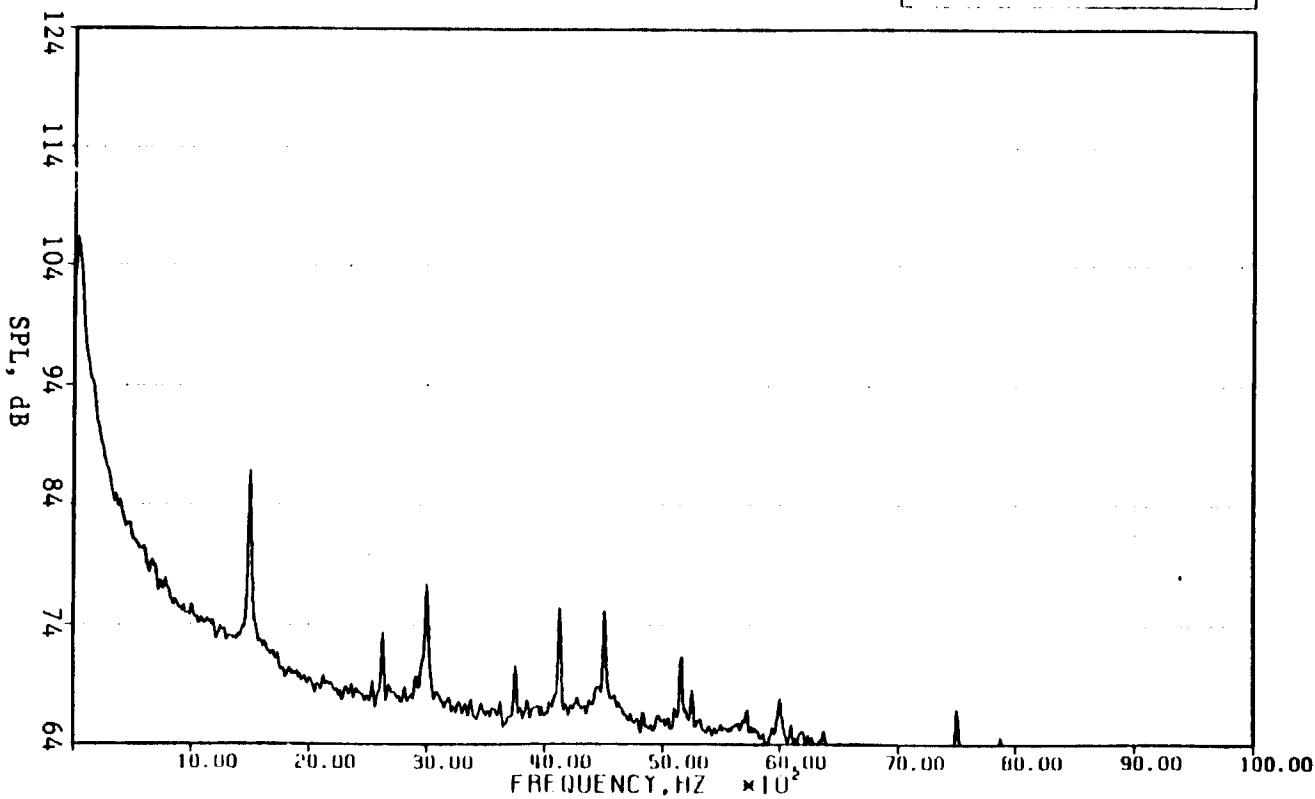
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## Appendix 9.2.6.p

## AVERAGED SPECTRUM

160 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-03  
 TAPE: E315 . 30 IPS  
 FAN = 2812 RPM. CORE = 112200 RP

RUN NO.	+12
POINT NO.	+282
OFF	+1500
NO. OF BLADES	32
VINYL OAT (DEG,F)	65.0
TAPE WE (DEG,F)	54.5
BLADE PRESS (deg RG)	54.80
BLADE SPZ	51.71
SIMP MUL (KHZ)	.251.600
0.01 (LITR/KHZ)	+10.000
IN CHAM TIME (SEC)	6
IN CHAM	+100
IN CHAM TIME (SEC)	13
MINIMUM (VOLTM)	-1
MINIMUM (SIG/VOLT)	-0.0000
MINIMUM CHM (DB)	0
MINIMUM CHM (RMS)	0.89
MINIMUM CHM (NET)	0
MINIMUM DIST (FT)	150.0



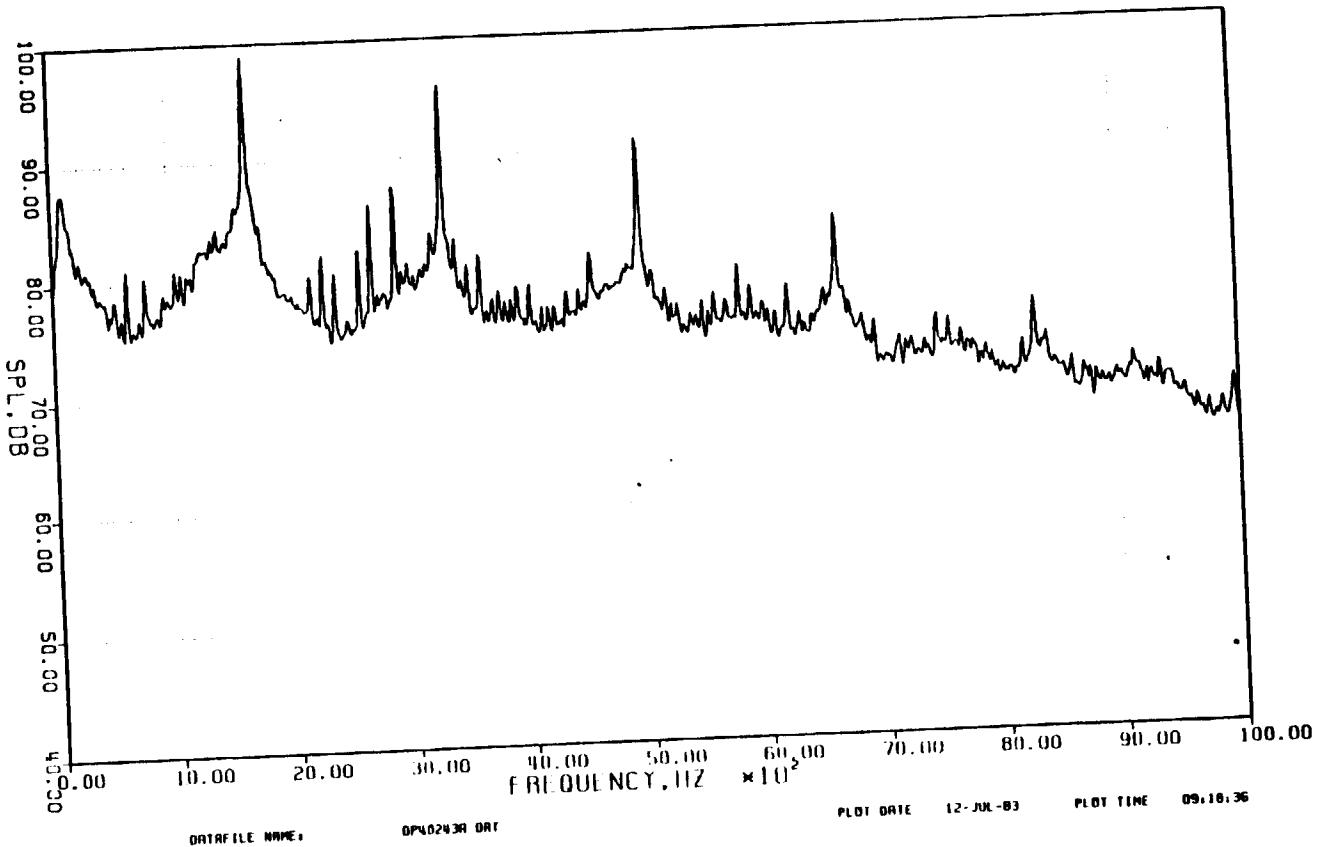
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Appendix 9.2.7.a

AVERAGED SPECTRUM

10 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 6-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM. COR = FAN = 3113

RUN NO.	=13
POINT NO.	=243
BPF	=1560
NO. OF BLADES	=65.0
TEMP. INT (10EG.F1)	=55.0
TEMP. MET (10EG.F1)	=54.5
BLADE PRESS (T <sup>o</sup> HG)	=29.50
BLADE SIZE	=2048
SAMP RATE (KHZ)	=25.600
A/D FILTER (KHZ)	=10.000
REC. TIME (SECS)	=100
BLADES	=100
NUMBER (10HZ)	=13
MINIMUM (1-HARMN)	=1
GEN:IN PS1/VOLT	=.0016
GEN:IN GRIN (VOL)	=10
GEN:IN GRIN (HRS)	=90
GEN:IN LINE (A)	=124
GEN:IN DIST (ft)	=150.0



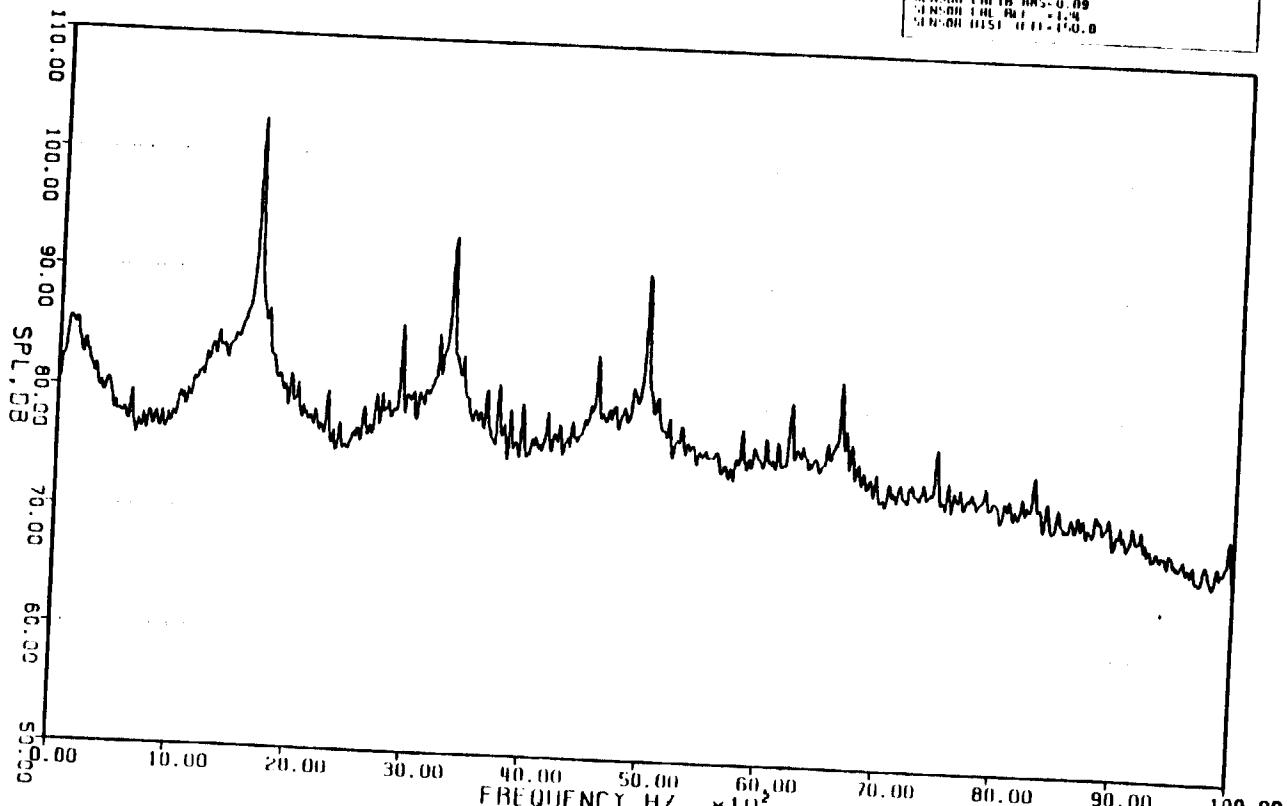
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## Appendix 9.2.7.b

## AVERAGED SPECTRUM

20 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TALATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM. COR xFAN = 3113

RUN NO.	-13
POINT NO.	-243
RFID	+1660
NO. OF PHONES	
TEMP. INT. (DEG. F)	-65.0
TEMP. MFT. (DEG. F)	-54.5
BARO. FWD. 52 (INHG)	-29.50
BARO. BACK (INHG)	-204.8
SPEED. WIND. (MPH)	-20.500
DATA FILTERING (HZ)	(0.000)
REC'D TIME (CEST)	
AVG. HOURS	-100
NUMBER OF DATA	-13
NUMBER OF BINS	-1
DATA RATE (VOLT)	-0.0016
GEN.00.100.000.000.00	



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DATAFILE NAME:

0P40243A.DAT

PLOT DATE 12-JUL-83

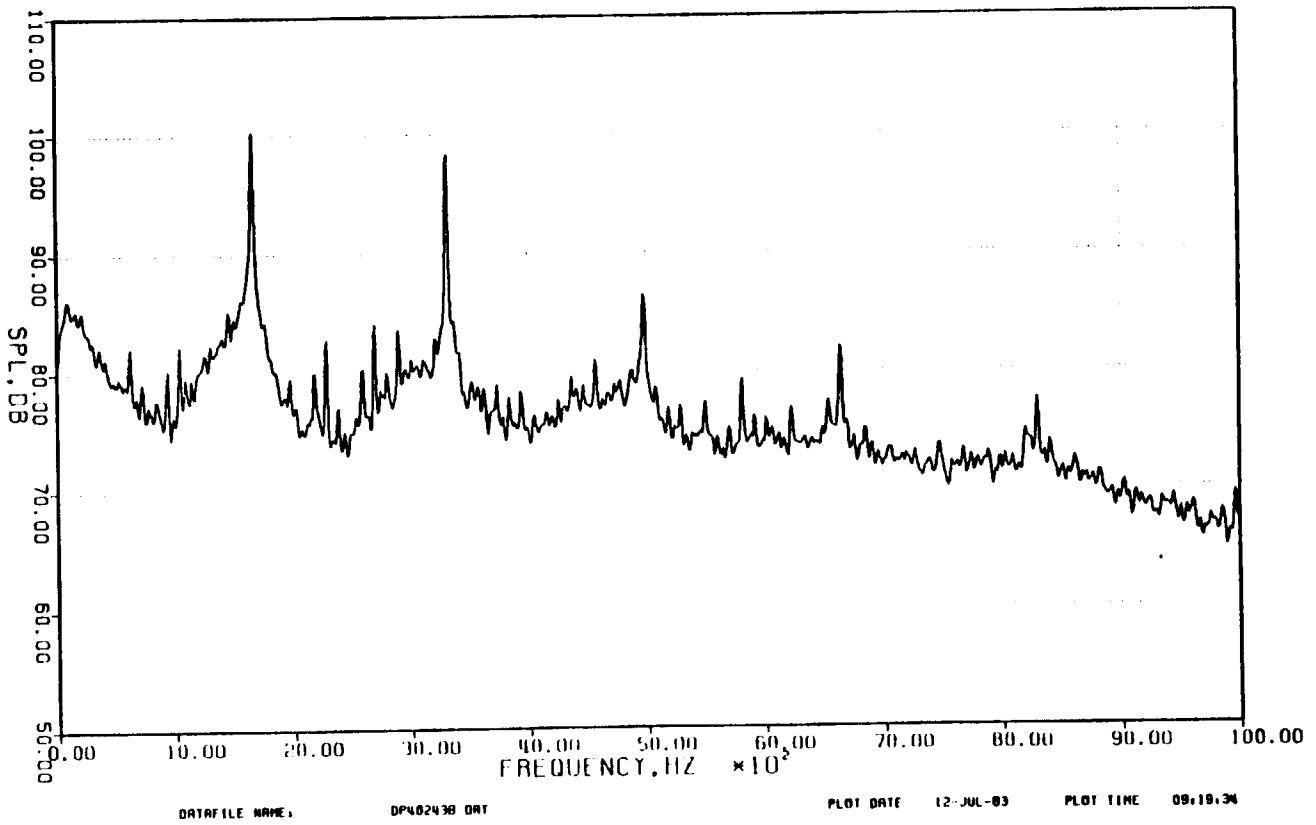
PLOT TIME 00:18:50

Appendix 9.2.7.c

AVERAGED SPECTRUM

30 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE NO . DATE: 8-JUN-83  
TYPE: E315 . 30 IPS  
FAN = 3113 RPM, COR = FAN = 3113

RUN NO.	=13
POINT NO.	=243
BPF	=1660
NO. OF BLADES	=32
TEMP DRY (DEG.F)	=65.0
TEMP WET (DEG.F)	=74.5
BPM PISS (HGT)	=1.50
REL HUM (%)	=2040
SIGN. HUM (INCH)	=0.00
DATA FILTER (HZ)	=10.000
DATA TIME (SEC)	=8
AVG HUM (%)	=100
DATA WIDTH (HZ)	=10
GRAD. (DB/VOLT)	=0.0016
GRAD. (DB)	=10
COR. (DB RMS)	=0.90
COR. (DB RTT)	=1.4
COR. (DB STT)	=1.0



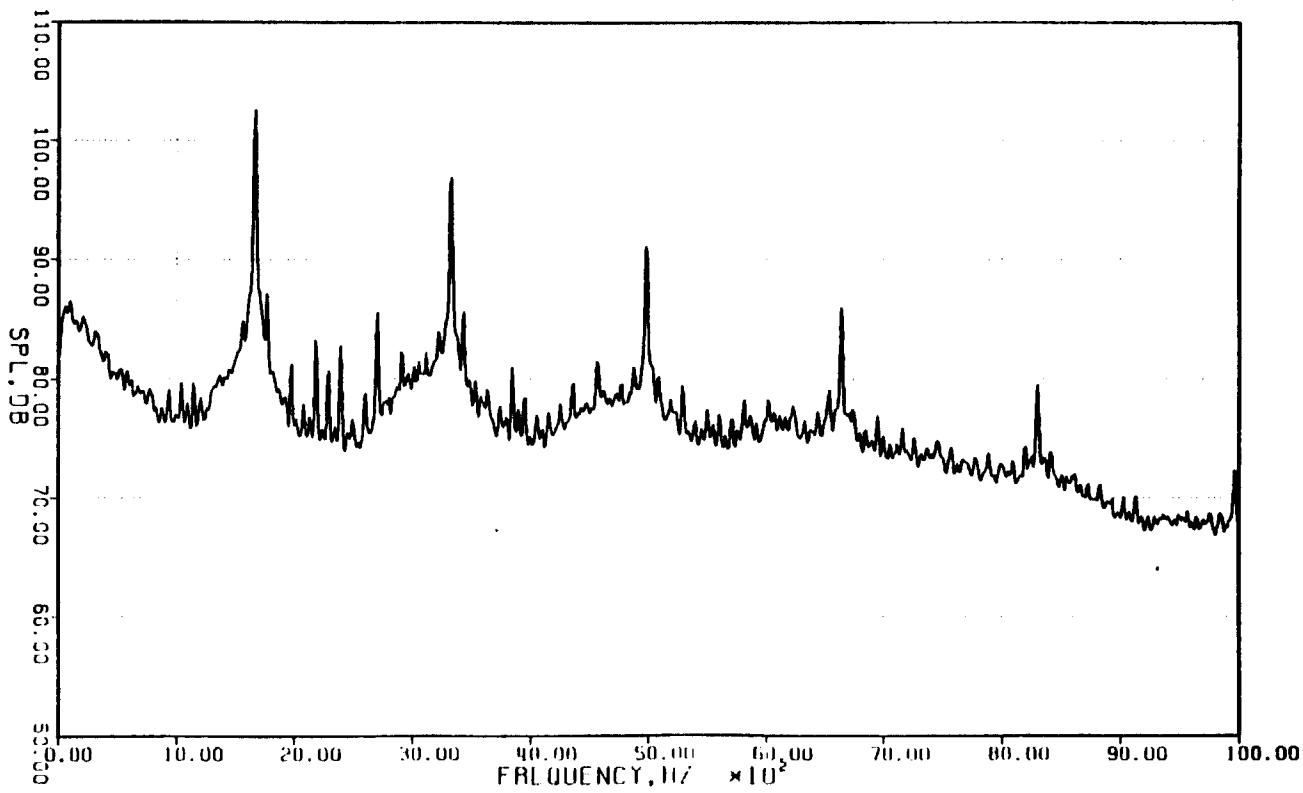
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## Appendix 9.2.7.d

## AVERAGED SPECTRUM

40 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D . DATE: 8-JUN-83  
TAPE: E315 . 30 IPS  
FAN = 3113 RPM. COR = FAN = 3113

RUN NO.	-13
POINT NO.	-243
SPW	-1660
NO. OF BLADES	-12
TEMP DRY (DEG.F)	-65.0
TEMP MFT (DEG.F)	-54.5
DIAH. PHS 55 (DEG)	-29.50
BLADE SPAN (INCH)	-10.00
CORP. MFT (INCH)	-10.000
REF. PHT. TIME (SEC.)	.6
AV. DRAWS	.100
NUMBER OF DRAWS	-14
NUMBER OF DRAWS	-1
REF. DIAH. (INCH)	-0.0016
100.00 DIAH. (INCH)	-10
SEPAR. DIST (INCH)	-150.0



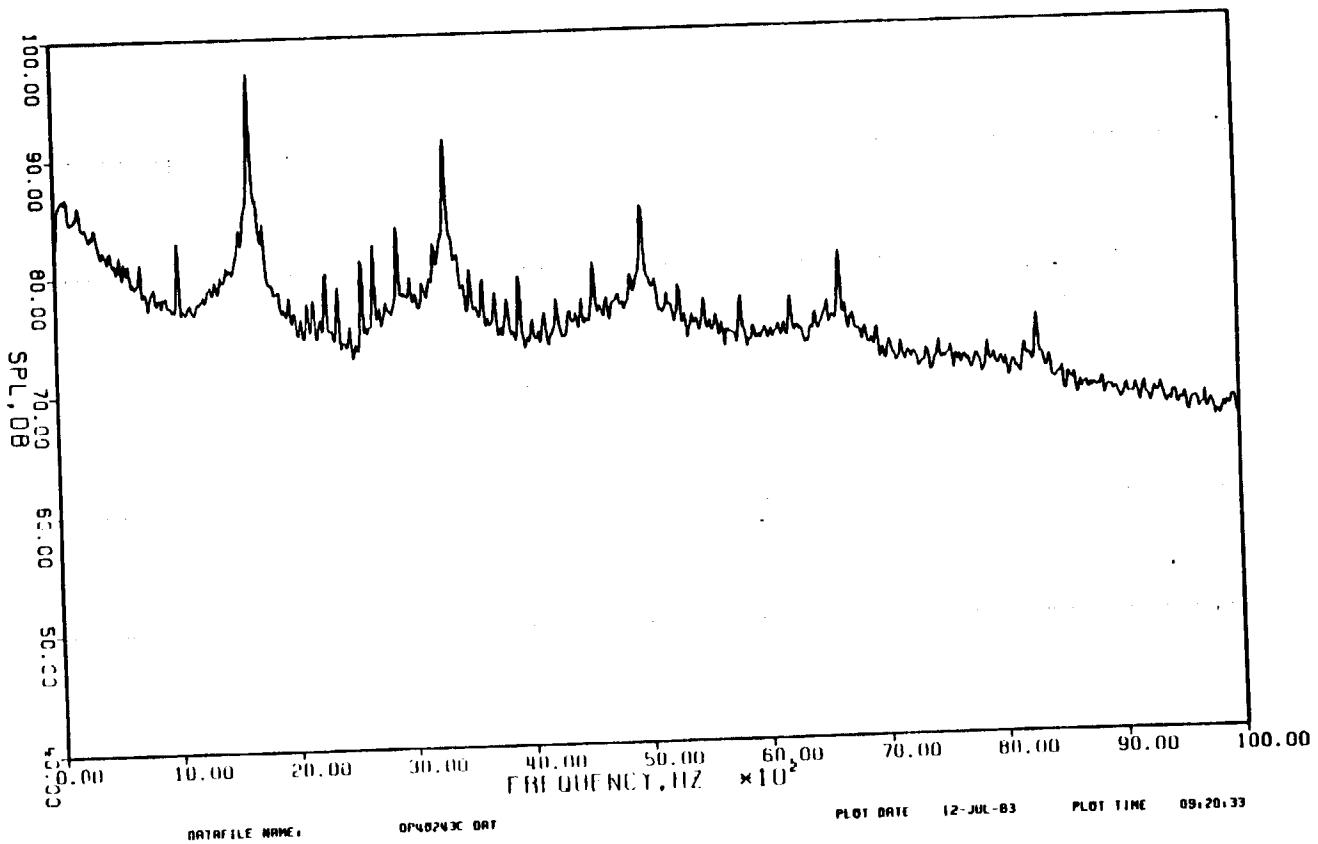
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Appendix 9.2.7.e

AVERAGED SPECTRUM

50 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 3113 RPM, COR = FAN = 3113

RUN NO.	=13
POINT NO.	=283
BPF	=1660
NO. OF BLADES	=32
TEMP ART (DEG.F)	=65.0
TEMP WT (DEG.F)	=54.5
DIMM PUL 55 (°HDL)	=1450
DIMM PUL 55 (°HDL)	=1460
SPL (DB) (1KHZ)	=25.600
G/D (10 KHZ)	=10.000
REC'D BY (INI CODE)	=A
OVERLOADS	=100
OVERLOADS (0.02)	=13
WINDOMIT, R	=1.0
VIN (VOLTS)	=0.0016
SEN. ON LATW (DB)=10	
SEN. ON CHFB (DB)=0.93	
SEN. ON CH FB	=1.4
SEN. ON DIST (FT)=150.0	



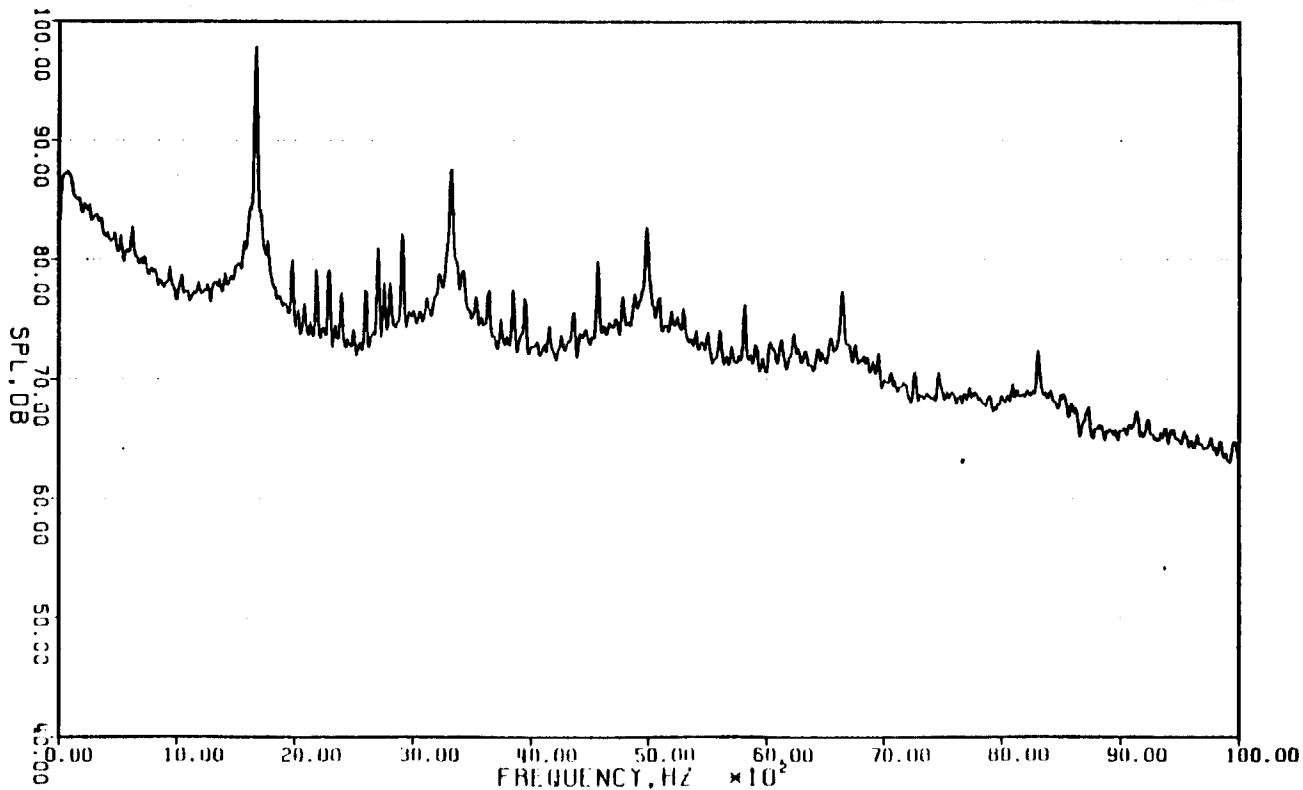
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## Appendix 9.2.7.f

## AVERAGED SPECTRUM

60 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 3113 RPM, COR = FHN = 3113

RUN NO.	= 13
POINT NO.	= 243
BPF	= 1660
NO. OF BLADES	= 32
TEMP DRT (0RG.F)	= 65.0
TEMP WRT (0RG.F)	= 54.5
AMBIENT TEMP (°HGT)	= 54.50
BLADE SPACING	= .00400
TEMP (0RG.1000)	= 25.000
R.D. (0) (0RG.1000)	= 10.000
RECORDING TIME (SEC.)	= 0
AVERAGES	= 100
DATA POINTS	= 13
REFLECTION COEFF.	= 0.00000
SEN-ON-FST/VMT	= 0.0016
SEN-ON-CAM-TORI	= 10
SEN-ON-CIN TO RMS	= 0.91
SEN-ON-CIN RET	= 0.9
SEN-ON-DIST (FT)	= 140.0



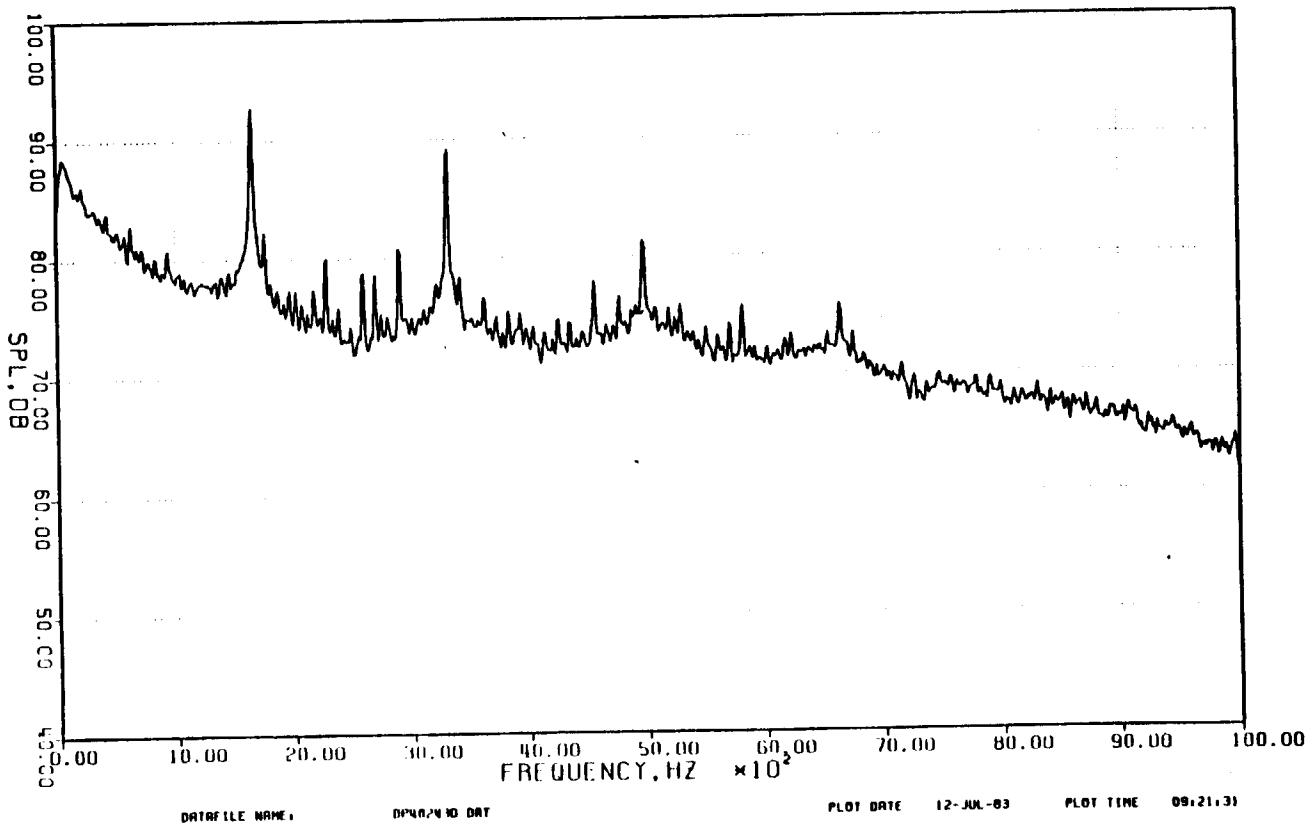
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Appendix 9.2.7.g

AVERAGED SPECTRUM

70 DEG G/P  
 E CUBED PEARLS TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM, COR =FAN = 3113

RUN NO.	=13
POINT NO.	=243
OFF	=1660
NO. OF BANDS	=32
TEMP DATA (INT G.F.)	=65.0
TEMP DATA (INT G.F.)	=65.5
ARMED PRESS (INT NG)	=24.50
BLOCK SIZE	=2048
TEMP DATA (KHZ)	=25.600
REC'D TIME (KHZ)	=10.000
REC'D TIME (SEC)	=6
AVE ANGLES	=100
REC'D TIME (HZ)	=1
MINIMUM INT (HANN)	=1
SEN:IN PSI/VOLT	=0.0016
SEN:IN GAIN (DB)	=10
SEN:IN CAL TB RMS	=0.42
SEN:IN CAL REF	=1%
SEN:IN DIST (FT)	=150.0



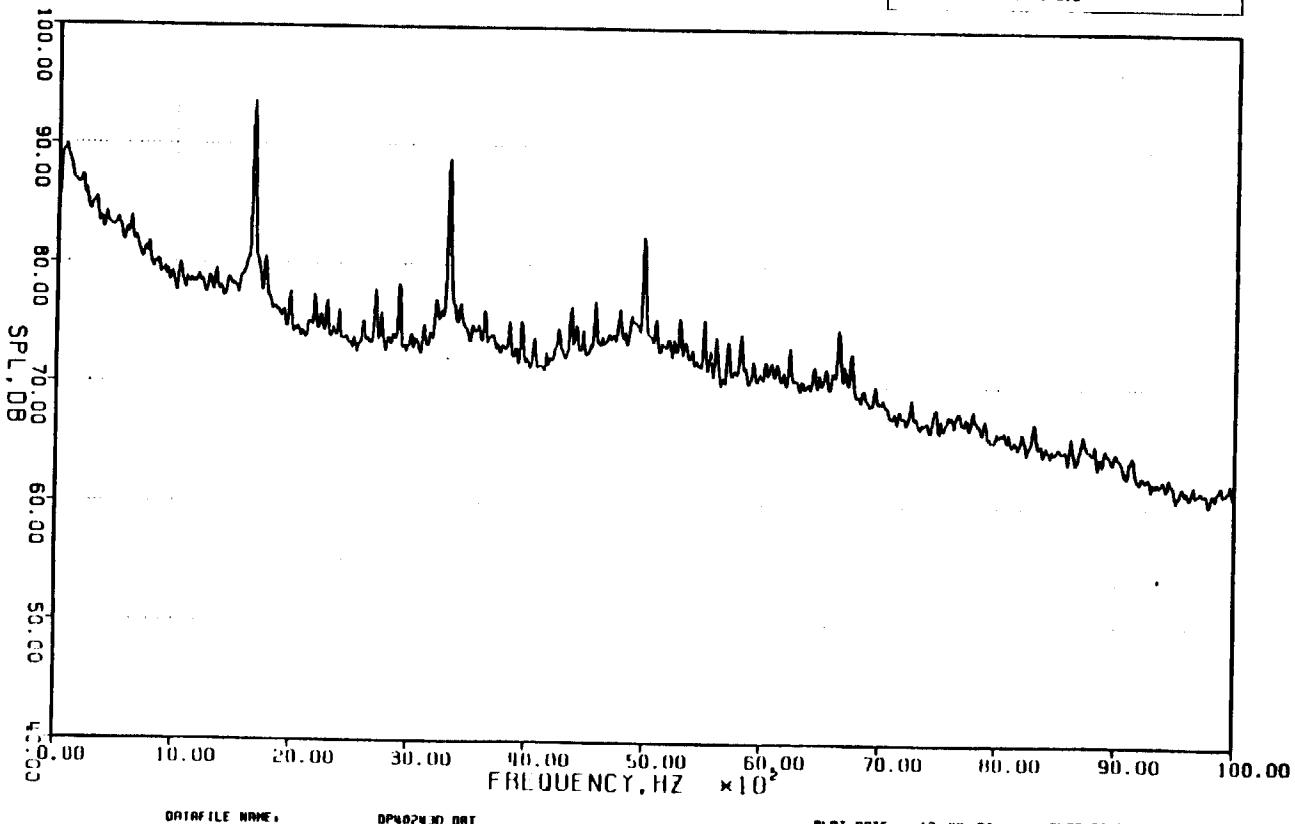
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## Appendix 9.2.7.h

## AVERAGED SPECTRUM

80 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM. COR =FAN = 3113

RUN NO.	-13
POINT NO.	-243
DTF	-1650
NO. OF BLADES	
TEMP DRY (DEG.F)	-65.0
TEMP WET (DEG.F)	-59.5
AMBI. PWS ST (NGT)	-29.50
BLADE SIZE	-2148
SURFACE AREA (INCH <sup>2</sup> )	-25.500
REF. LINE (INCH)	-10.000
REF. TIME (CALC)	
REV. AREA S.	-100
REV. WIDTH (INCH)	-1.4
MIN/MAX (INCH)	-1
SEN. ON TS/VENT	-0.0016
SEN. ON TS/VENT	-0.0016
SEN. ON CAR (DMS)	-0.91
SEN. ON CAR (GT)	-1.4
SEN. ON DIST (INCH)	-0.0



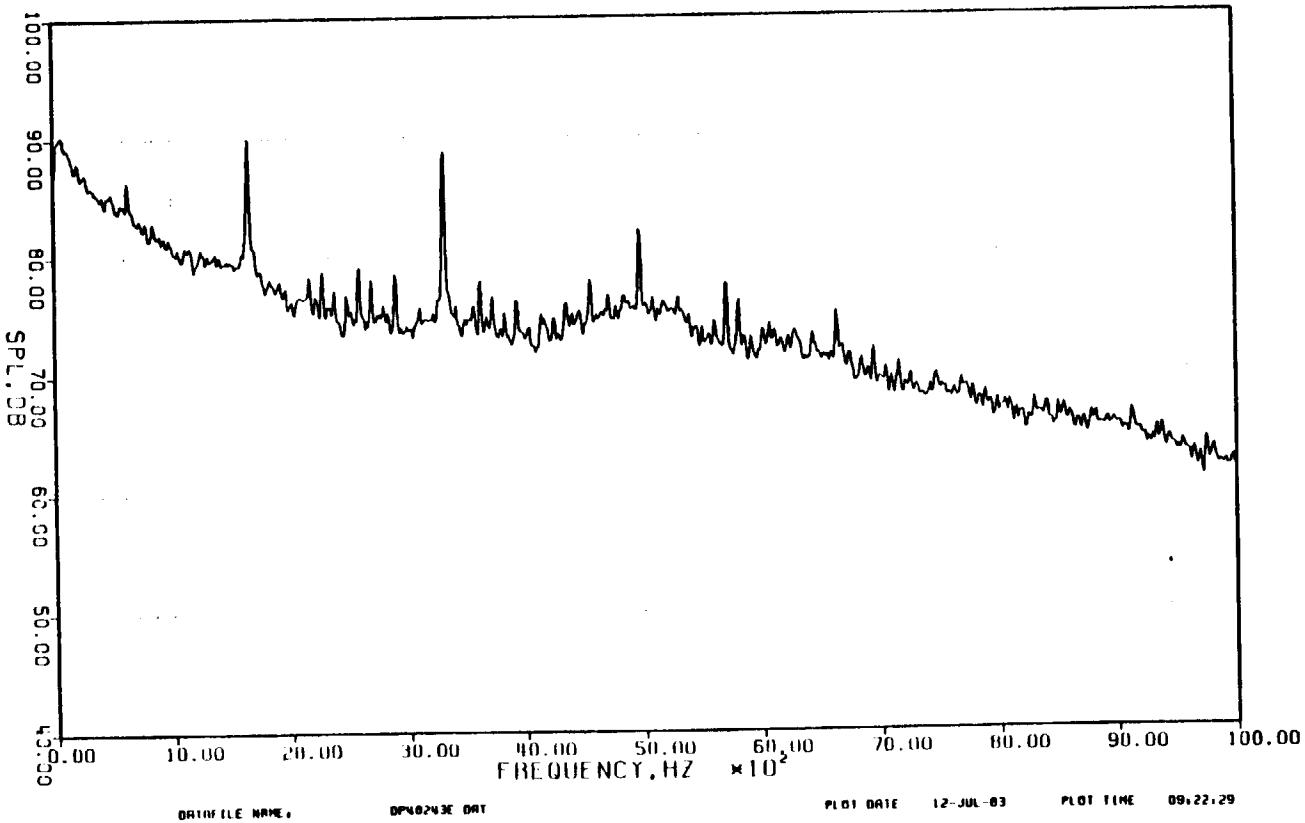
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### Appendix 9.2.7.1

#### AVERAGED SPECTRUM

90 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 3113 RPM, COR = FAN = 3113

RUN NO.	13
POINT NO.	243
BPF	1650
NO. OF BLOCKS	65.0
TEMP OUT (DEG.F)	65.0
TEMP INT (DEG.F)	70.5
AMIN FINESS (INCH)	20.50
BLOCK SIZE	2048
SAMP RATE (KHZ)	20.000
DATA L1 TO DATA21	0.000
REF DENSITY (G/CM3)	8
REF DENSITY (G/CM3)	100
REF WIDTH (INCH)	11
MINIMUM (1) HARMONIC	1
MIN (DB) FS1/VM1	-0.0016
MIN (DB) L1/L10	-0.10
MIN (DB) L1/L10 RMS	-0.93
MIN (DB) L1/L10 REF	-1.9
MIN (DB) DIST (FT)	-1.0.0

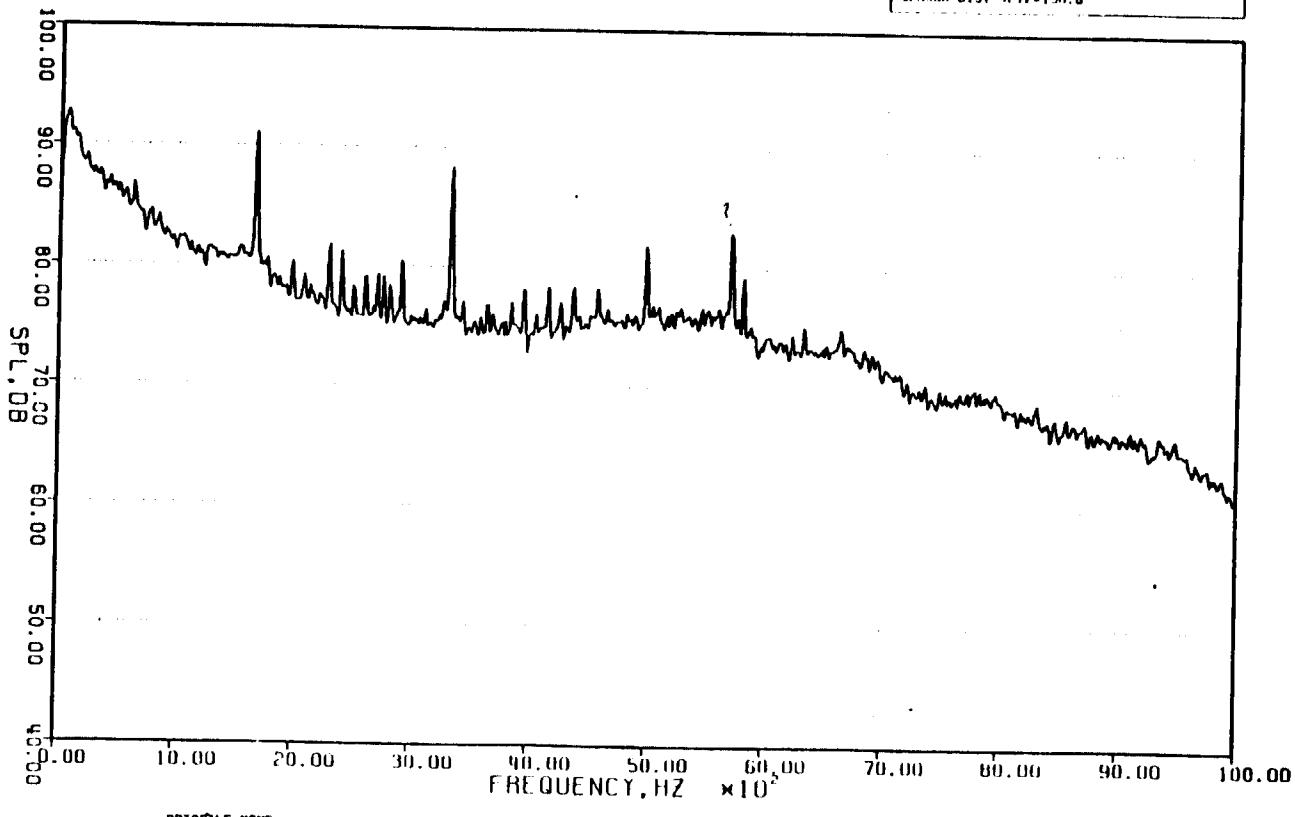


## Appendix 9.2.7.j

## AVERAGED SPECTRUM

100 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 3113 HPM, COR = FAN = 3113

RUN NO.	-13
POINT NO.	-13
SPF	-1650
NO. OF BLADES	-32
TEMP DAY (DEG.F)	-65.0
TEMP NIGHT (DEG.F)	-54.5
BARO PRESS (T.H.C.)	-29.50
SPD RATE (IN/H)	-21000
R/H FILTER (IN/H)	-10.000
REF DAD TIME (SEC)	-0
REL HUMID	-100
WIND SPEED (IN/S)	-13
WIND DIRECTION	-8
SENSOR DIST (IN) -10.0015	
SENSOR CH1A RMS -0.95	
SENSOR CH1B RMS -0.95	
SENSOR CH1C RMS -124	
SENSOR DIST (FT) -150.0	



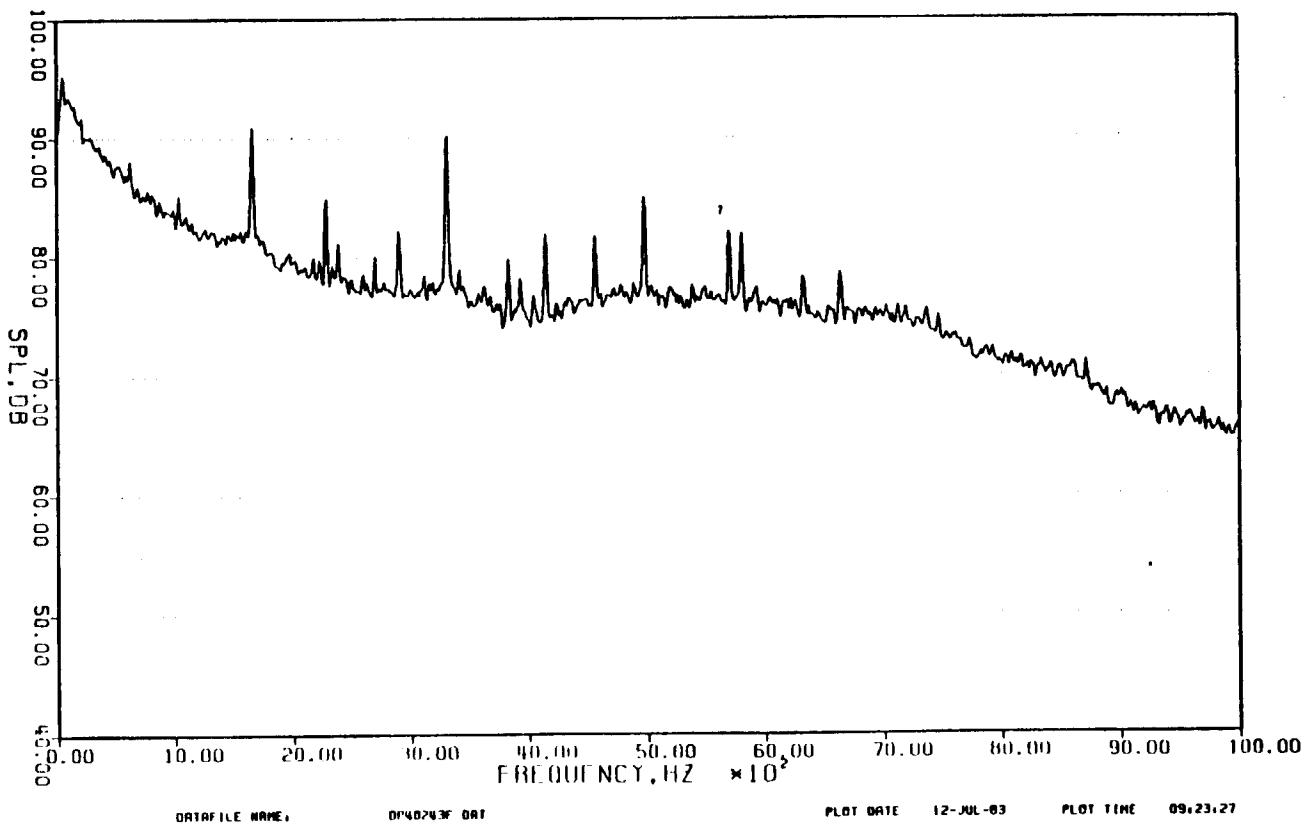
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Appendix 9.2.7.k

AVERAGED SPECTRUM

110 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TILTED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 3113 RPM, COH -FAN = 3113

RUN NO.	=13
POINT NO.	=263
BIT	=1660
NO. OF BLADES	=2
BLADE SPAN (INCH)	=66.0
TEMP MFT (DEG.F)	=58.5
BAND PRESS (MAG)	=29.50
BLADE SPAN (MM)	=1676.00
SUPER. AMPL. (DB/Hz)	=25.600
DYNAMIC LINEAR (DB/Hz)	=10.000
AMPLITUDE (DB/1000)	=100
AV. BLADES	=100
AMPLITUDE (DB)	=1.1
WINDOW (1+HANN)	=1
SENSOR PSV/VOLT	=0.0016
SENSOR GAIN (DB)	=10
SENSOR CEMTIC RMS	=0.93
SENSOR CEMTIC NORM	=124
SENSOR DIST (FT)	=150.0



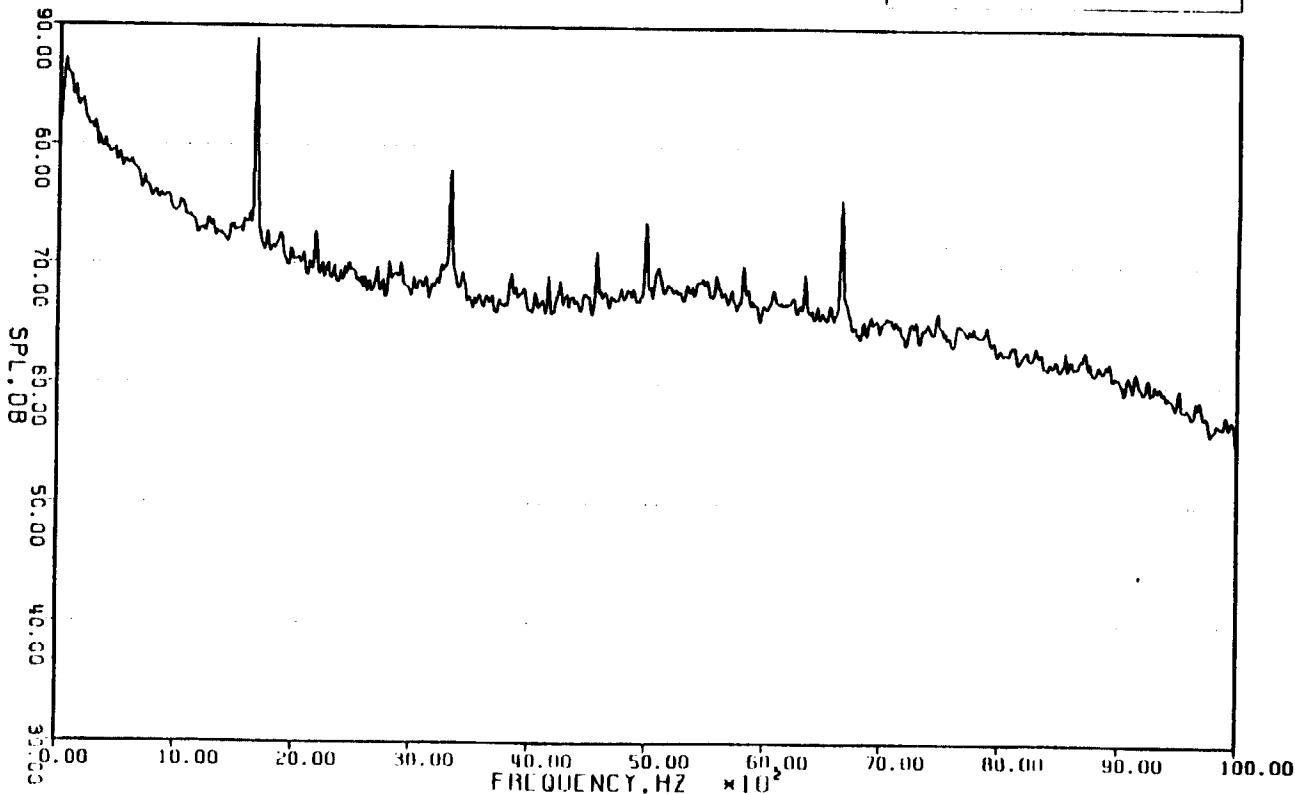
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## Appendix 9.2.7.1

## AVERAGED SPECTRUM

120 DEG G/P  
 E CUBED PEBBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8 JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 3113 RPM, COR = FAN = 3113

RUN NO.	-13
POINT NO.	-243
WT.	-1580
NO. OF BLADES	-1
TEMP DAY (DEG.F)	-65.0
TEMP NIGHT (DEG.F)	-54.5
BINN PRESS 1" (PSI)	-201.50
BLADE SIZE	-214.8
BLADE THICK (INCH)	-0.001.00
BLADE TIME (SEC)	-0.000.000
BLADE L.D.	-100
BINNTHICK (INCH)	-1.1
BINNTHICK (1000MM)	-1
SPL. DB (PSI/VOLT)	-0.0016
SPL. DB (VOLTS)	-10
SPL. DB (100 HZ)	-92
SPL. DB (1000 HZ)	-14
SPL. DB (1KHZ)	-140.0



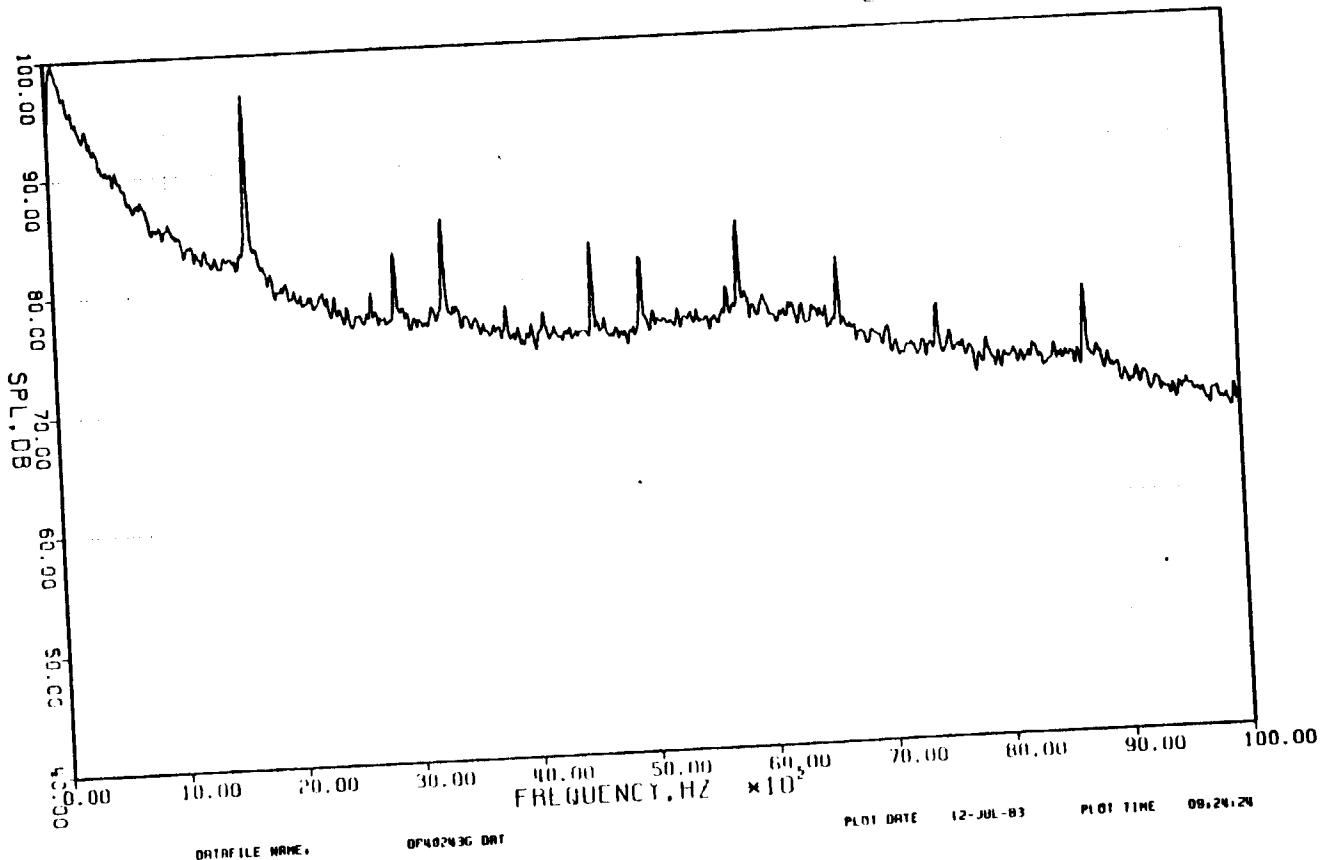
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Appendix 9.2.7.m

AVERAGED SPECTRUM

130 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM. COR = FAN = 3113

RUN NO.	= 13
POINT NO.	= 243
BPF	= 350
NO. OF BLOCKS	= 32
TEMP ART (DEG.F)	= 64.0
TEMP WT (DEG.F)	= 44.5
DIAIR PRESS (PSI)	= 1.50
WIND SPEED (MPH)	= 0.000
WIND DIR (DEG)	= 0.000
WIND HGT (INCH)	= 0.000
WIND DUR (SEC)	= 0.000
WIND TIME (SEC)	= 0.0
WIND DIREC	= 100
WIND DURATN (SEC)	= 13
WIND DURATN (SEC)	= 1
SLOW DR PSIZ/VEL	= 0.0051



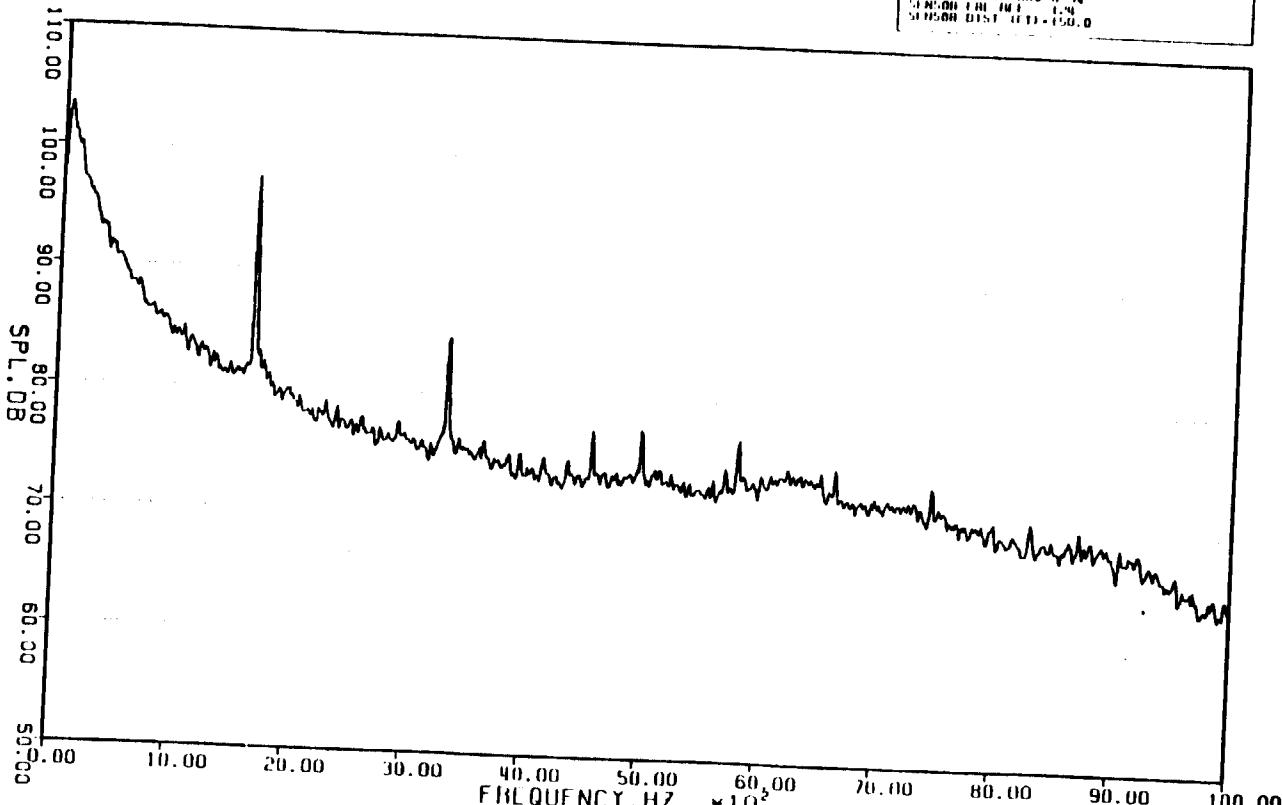
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## Appendix 9.2.7.n

## AVERAGED SPECTRUM

140 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 3113 RPM, COH = FAN = 3113

RUN NO.	• 13
POINT NO.	• 163
SPF	• 1660
NO. OF BLADES	• 32
PLOT DAY (DDG.F) • 65.0	
PLOT MO (DLC.F) • 04.5	
PLOT YR (DLC.F) • 80.50	
BLADE SPAN (IN.) • 20.50	
BLADE SPAN (MM) • 515.00	
BLADE SPAN (KHZ) • 0.0008	
0.01 CYCLE (KHZ) • 0.00000	
0.01 CYCLE (MM) • 0.00000	
RECDMM (MM) (STL) • 0	
RECDMM (MM) (BLADE) • 0.00	
RECDMM (MM) (BLADE) • 0.00	
SEN001 F12VOLT 0.0049	
SEN001 GEAR (RPM) 0.0049	
SEN001 COIL (RMS) 0.00	
SEN001 COIL (MAX) 0.00	
SEN001 DIST (FT) 100.0	



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DATAFILE NAME:

DP40243G.DAT

PLOT DATE 12-JUL-83

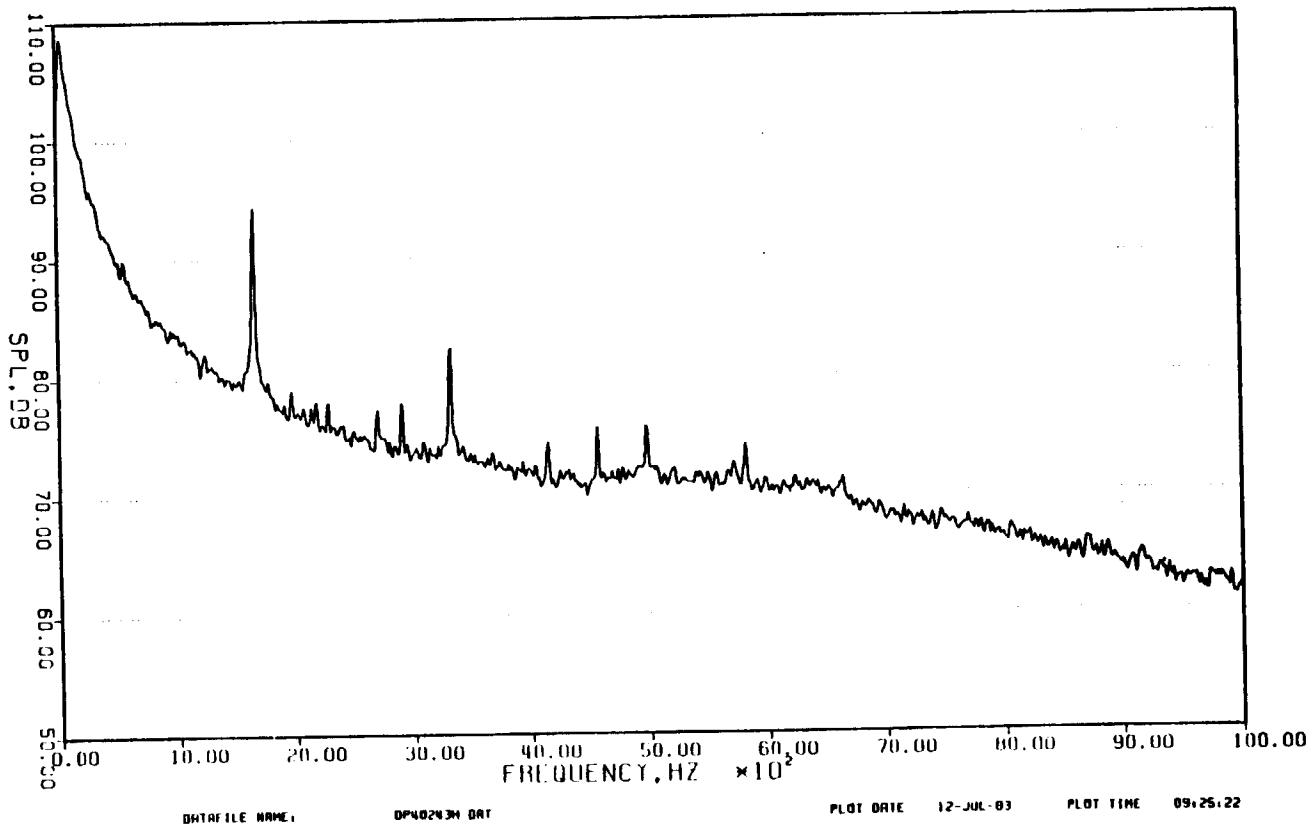
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### Appendix 9.2.7.o

#### AVERAGED SPECTRUM

150 DEG G/P  
 E CUBED PEBBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN 83  
 TAPE: E315 , 30 IPS  
 FAN = 3113 RPM, COR =FAN = 3113

RUN NO.	=13
POINT NO.	=243
BPF	=1660
NO. OF BLOCKS	=32
FLYING DIST (DEG, FT)	=65.0
FLYING DIST (DEG, M)	=19.5
MIN. PRESS (MM)	=21.50
BLOCK SIZE	=2048
MIN. DIST (MM)	=24.600
MAX. DIST (MM)	=10.000
FLYING TIME (SEC.)	=0
ROT. RATE	=100
WIND DIRECTION	=113
MINIMUM (1-HARM)	=1
MIN. PSV (VOL)	=0.0051
MIN. GAIN (DB)	=0
MIN. CALIB. RMS	=0.91
MIN. CAL. RPT	=1.74
SENSOR DIST (FT)	=150.0



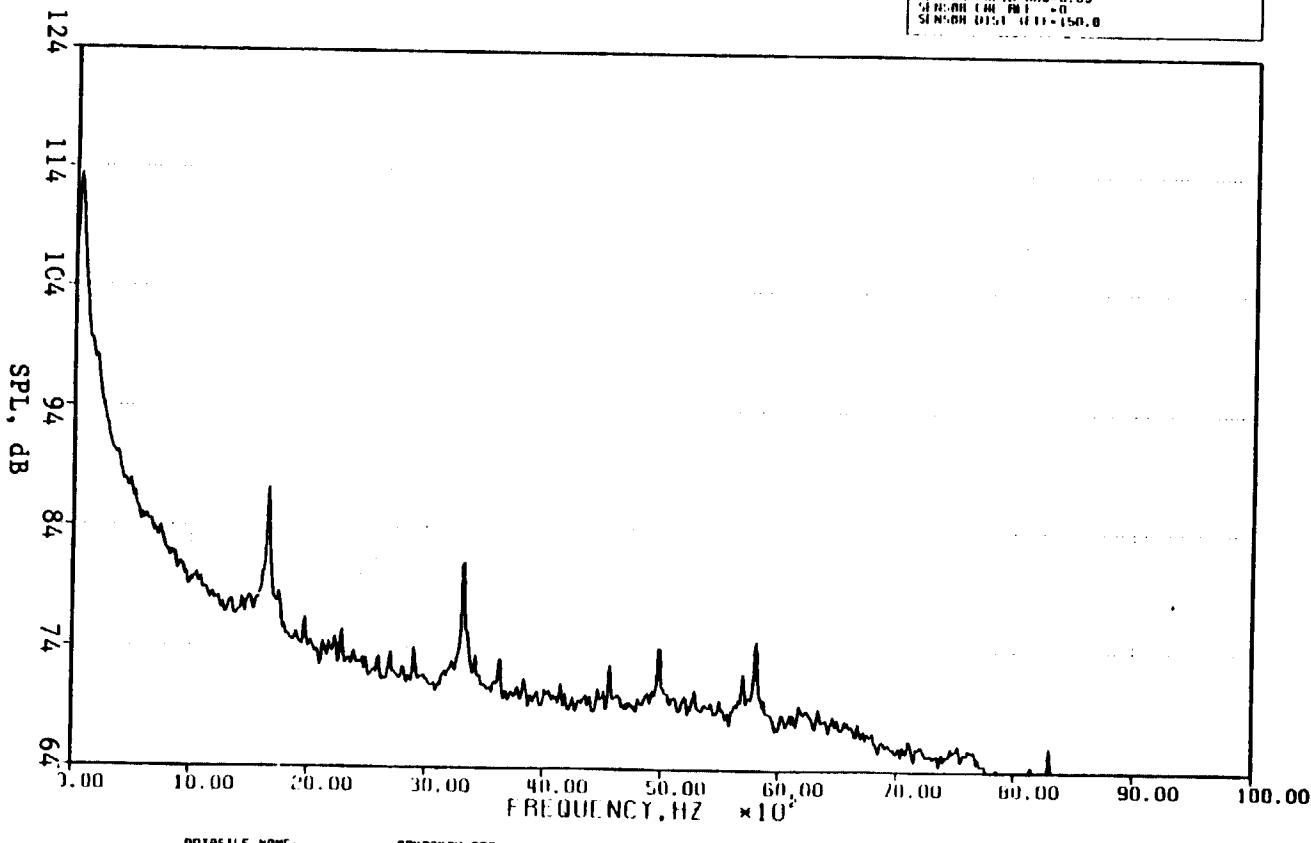
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## Appendix 9.2.7.p

## AVERAGED SPECTRUM

160 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 3113 RPM, COR = FAN = 3113

RUN NO.	= 13
POINT NO.	= 263
DPF	= 1600
NO. OF BLADES	= 32
TEMP DAT (DG,F)	= 65.0
TEMP MET (DG,F)	= 54.6
WIND PRESS (IN HG)	= 29.50
WIND SPEED	= 204.8
SIMUL. RPM (RPM)	= 25.000
0.71 F/T (FR/RT)	= 10.000
W/CORR TIME (SEC)	= 0
AVERAGE S	= 100
WINDWAVES (HZ)	= 13
WINDWAVES (MM/MM)	= 1
SENR:RH (CH1) RMS	= 0.0000
SENR:RH (CH1A) RMS	= 0.0000
SENR:RH (CH1B) RMS	= 0.89
SENR:RH (CH1C) RMS	= 0
SENR:RH (CH1) (dB)	= 150.0



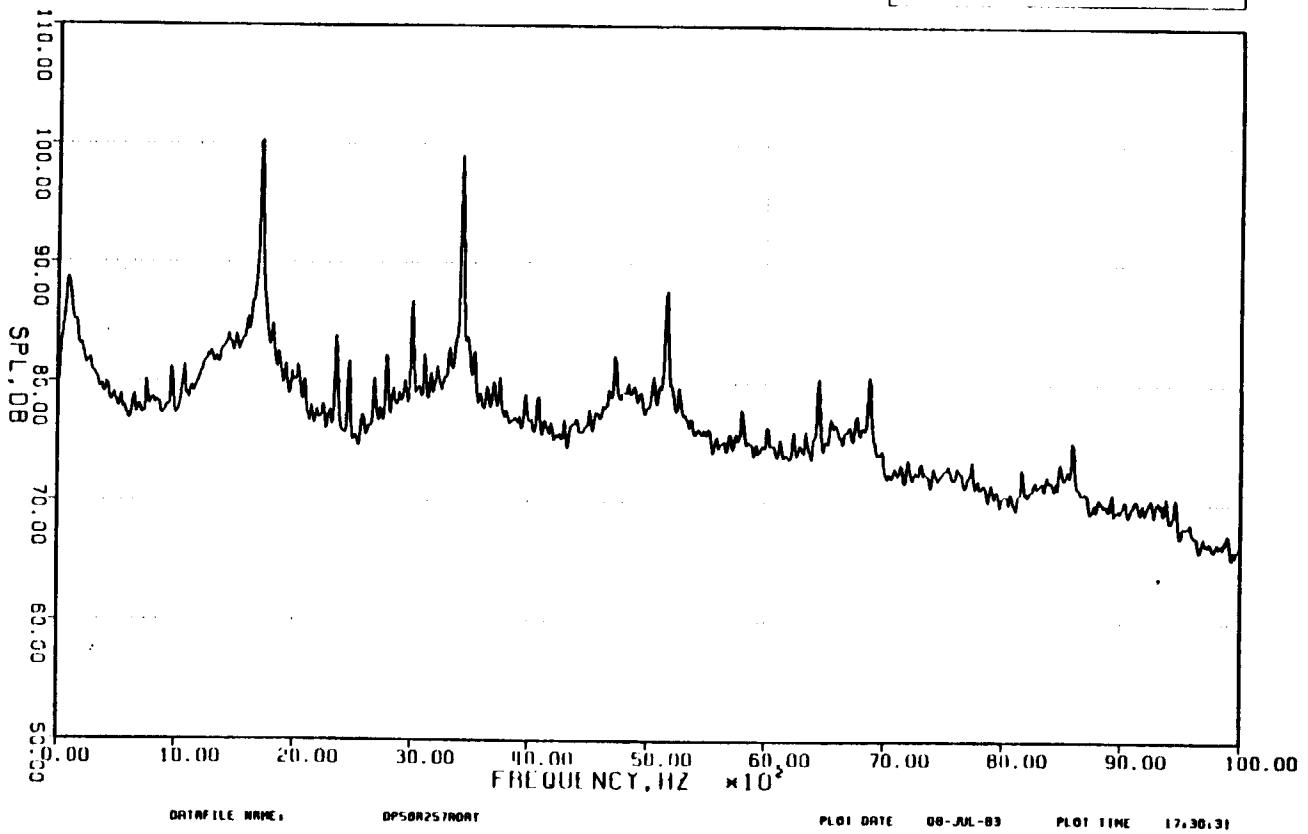
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Appendix 9.2.8.a

AVERAGED SPECTRUM

10 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: 1170 , 30 IPS  
 FAN = 3250 RPM . CORE = 12650

RUN NO.	=8
POINT NO.	=257
BPF	=1733
NO. OF BLADES	=32
TEMP. INT (10DEG.F)	=75.0
TEMP. OUT (10DEG.F)	=68.0
BINHO PHSS (PHGT)	=0.50
BLADE SIZE (MM)	=2048
SIMP. RULE (MMZ)	=25.000
DATA FILE (MMZ)	=10.000
RECORD TIME (SEC)	=8
AVERAGES	=100
MINIMUM (MMZ)	=1
MAXIMUM (MMZ)	=1
SEN.SENS(PSIZM01)	=0.0051
SEN.SENS(GRM_100)	=0
SEN.SENS(CALD_HRS)	=0.90
SEN.SENS(CAL_M1)	=1.24
SEN.SENS(DIST_VFT)	=15.0



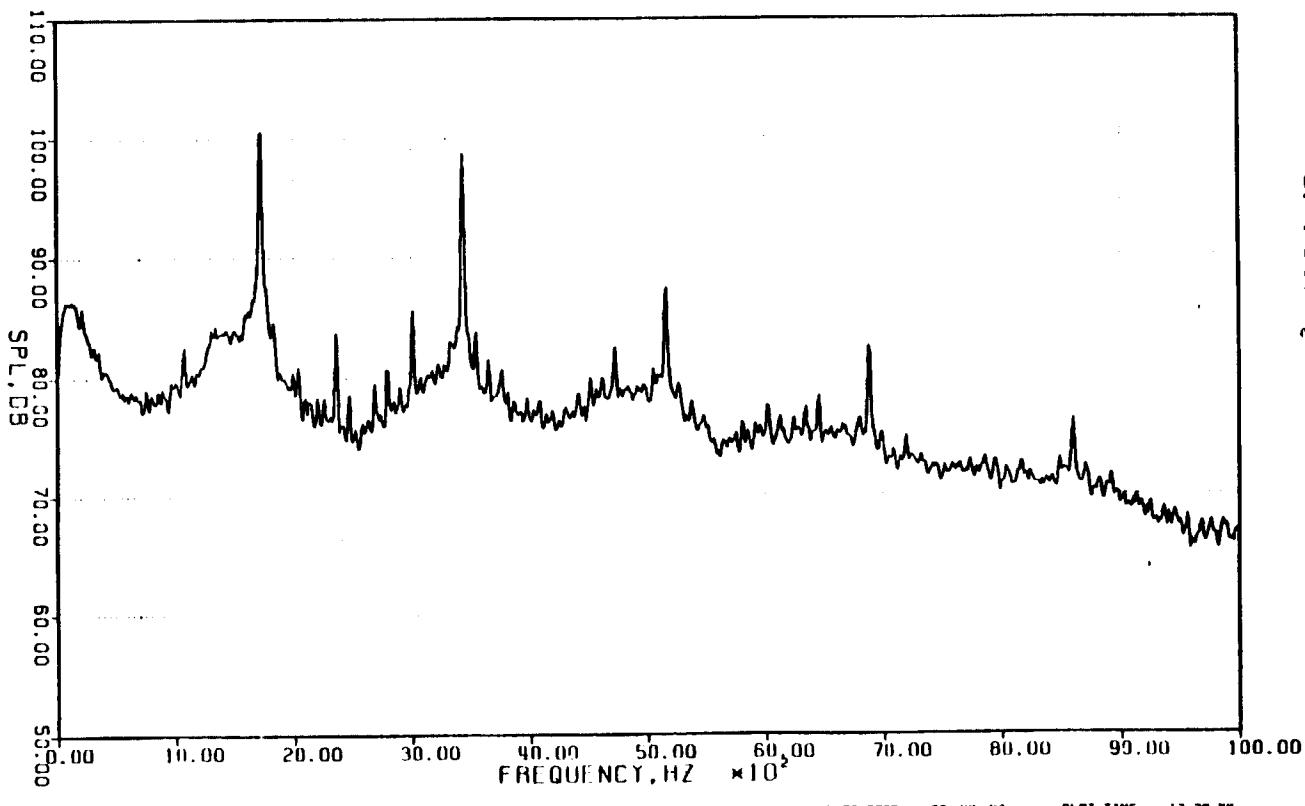
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## Appendix 9.2.8.b

## AVERAGED SPECTRUM

20 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 40 , DATE: 8-JUN-83  
TAPE: 1170 , 30 IPS  
FAN = 3250 RPM , CORE = 12650

RUN NO.	-8
PLOT NO.	-257
SPW NO.	-133
NO. OF BLADES	-32
TEMP DAT (DEG.F)	-75.0
TEMP WT (DEG.F)	-68.0
AMMO P/M 55 (T/HG)	-29.50
BALD (%)	-20.00
SPL (DB) (1000)	-75.000
DATA FILE (NAME)	-10.000
RECORD TIME (SEC.)	-8
AVG HOURS	-100
BANDWIDTH (HZ)	-13
MINIMUM (1) HARMONIC	-1
MINIMUM (2) HARMONIC	-0.0052
MINIMUM (3) HARMONIC	-0.0010
MINIMUM (4) HARMONIC	-0.0005
MINIMUM (5) HARMONIC	-0.0001
MINIMUM (6) HARMONIC	-0.0001
MINIMUM (7) HARMONIC	-0.0001
MINIMUM (8) HARMONIC	-0.0001
MINIMUM (9) HARMONIC	-0.0001
MINIMUM (10) HARMONIC	-0.0001

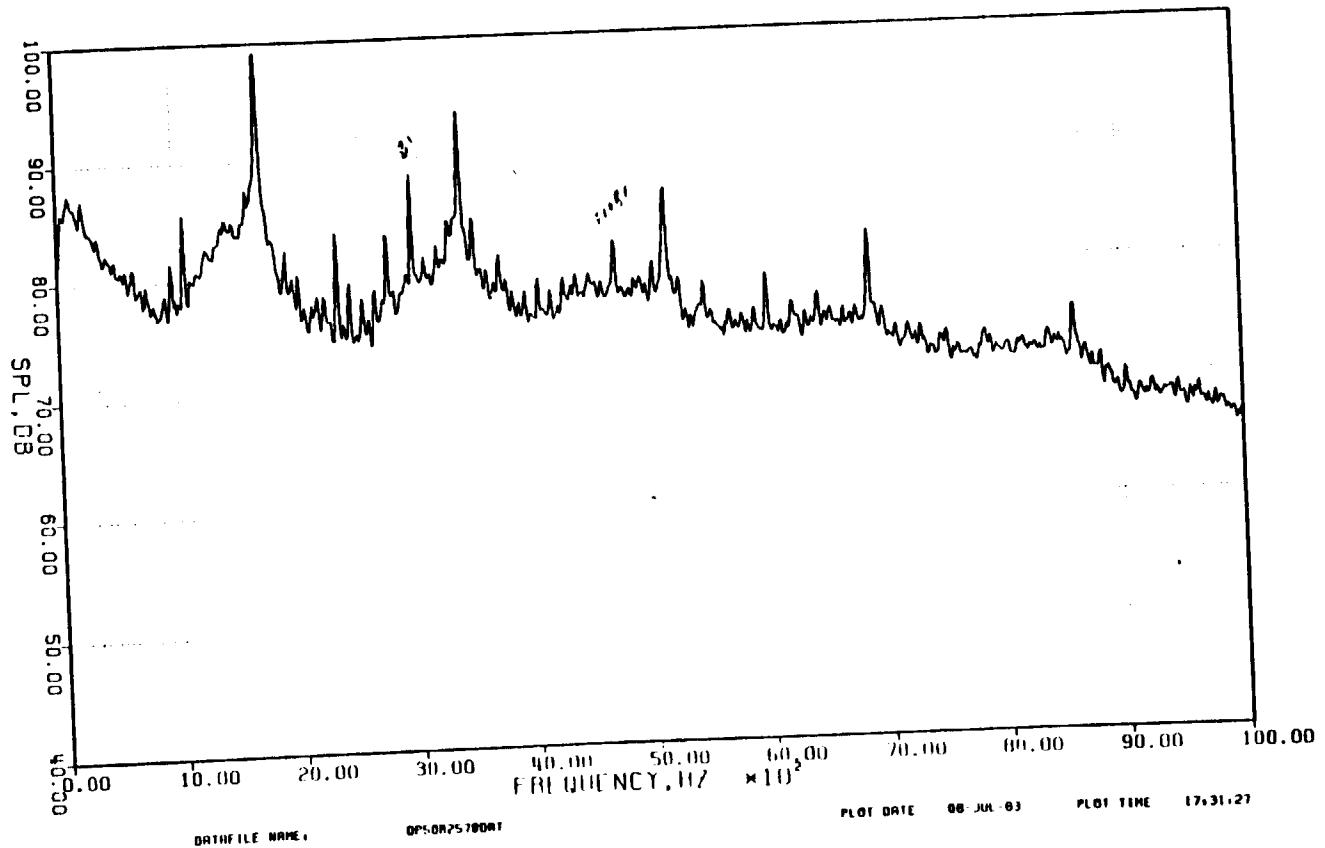


Appendix 9.2.8.c

AVERAGED SPECTRUM

30 DEG G/P  
 E CUBED PEBBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: 1170 . 30 IPS  
 FAN = 3250 RPM . CORE = 12650

RUN NO.	-8
POINT NO.	-257
BPF	-1733
NO. OF BLADES	-32
TEMP. DATA (100°C.F.)	-68.0
TEMP. DATA (100°F.C.)	-74.50
DUST PINESS (*MOL)	-21400
MIXER SIZE	-25.000
SIMP. ANTE (MHz)	-10.000
A/D FILTER (MHz)	-10.000
REC. DENS.	-1.00
RECORD WIDTH (Hz)	-13
MIN. WIDTH (Hz)	-1
SEN.SOR PSF/VOLT	-0.0051
SEN.SOR GAIN (DB)	-0.00
SEN.SOR CH1 TO RMS	-0.40
SEN.SOR CH1 TO INT	-0.24
SEN.SOR DIST (ft)	-15.0



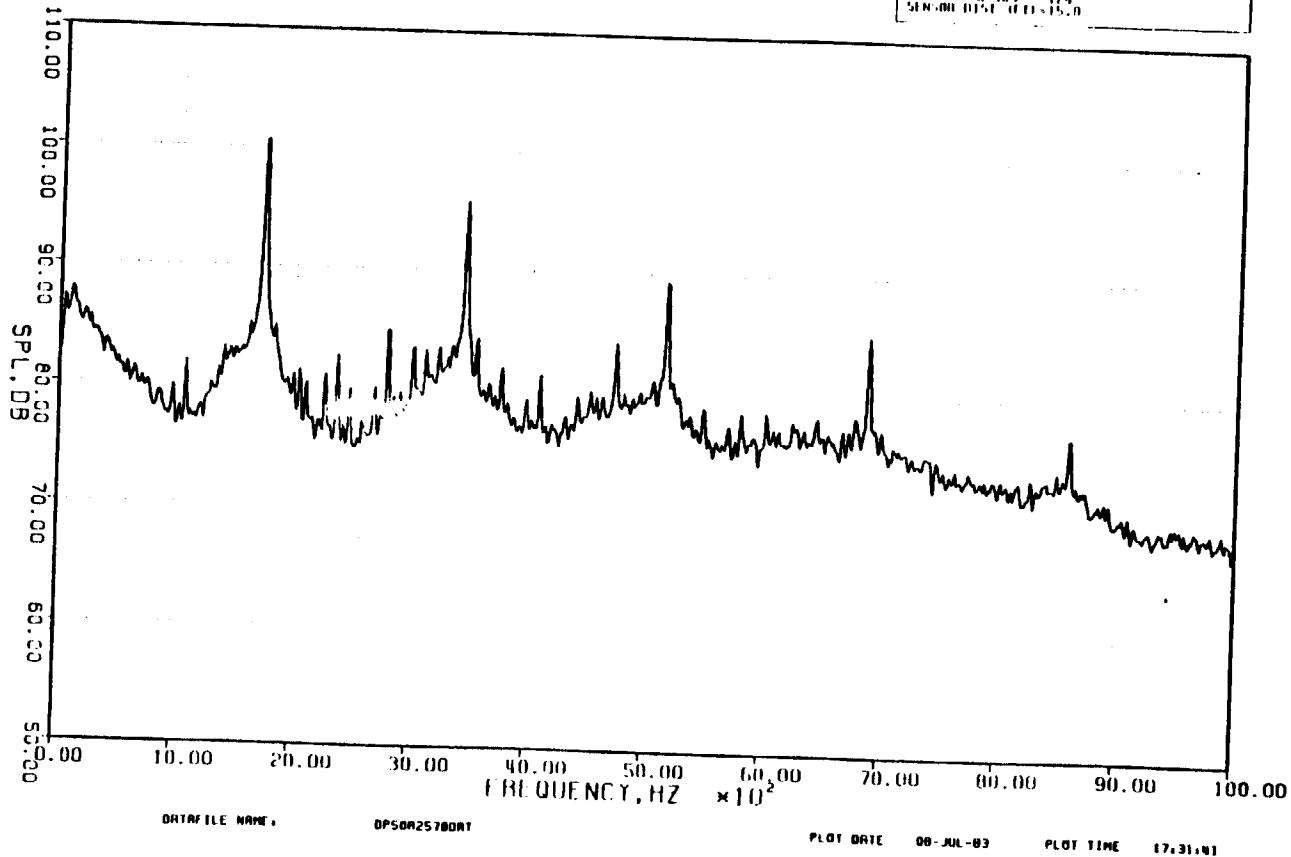
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## Appendix 9.2.8.d

## AVERAGED SPECTRUM

40 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: 1170 , 30 IPS  
 FAN = 3250 RPM . COHE = 12650

RUN NO.	-8
POINT NO.	-257
NO. OF PHASES	-32
TEMP DAT (REF. F)	-0.0
TEMP MET (deg.F)	-0.0
WIND DIR 55 (deg.)	-24.50
BLOCK SIZE	-2048
SOME ANGLE (deg.)	-20.000
REC'D TIME (SEC.)	-10.000
RECORD L	-0.000
MONITORING (DB)	-10
MONITORING (DBM)	-1
SIN-00 CS (V/W)	-0.0000
SIN-00 RHM (DB)	-0
SIN-00 RHM RMS-0.93	
SIN-00 LIN. AMT-1.74	
SIN-00 DUST (DB)-15.0	



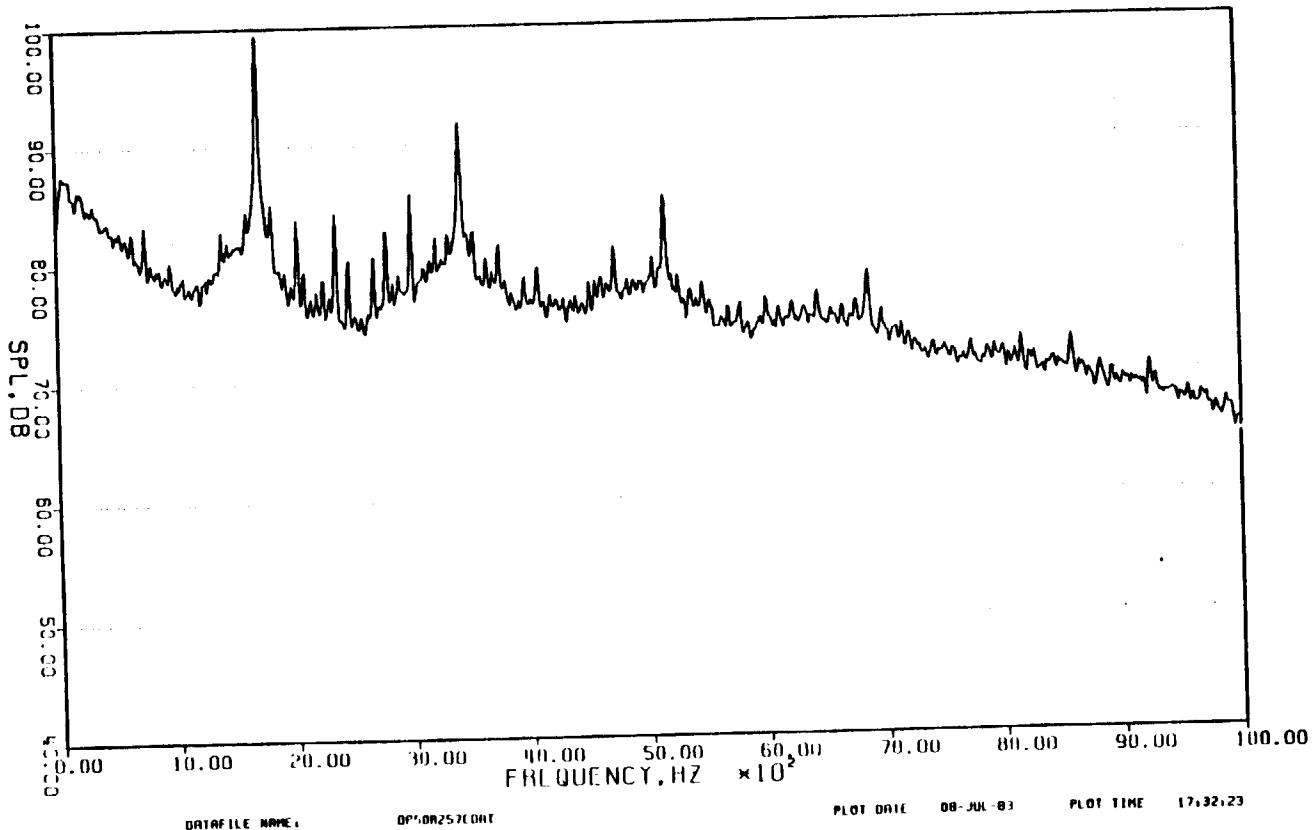
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Appendix 9.2.8.e

AVERAGED SPECTRUM

50 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 0-JUN-83  
 TAPE: 1170 . 30 IPS  
 FAN = 3250 RPM . CORE = 12650

RUN NO.	-8
POINT NO.	-257
BPF	-1733
NO. OF BLADES	-75.0
BLAD. DIA. (INCH.)	-75.0
BLAD. WEL. (INCH.)	-60.0
BLAD. PITCH (INCH.)	-20.50
BLAD. K. SIZE	-2048
BLAD. RATIO (KHZ)	-25.600
BLAD. C. T. (INCH.)	-0.000
BLAD. H. (INCH.)	-100
BLAD. L. (INCH.)	-13
BLAD. D. (INCH.)	-1
MIN. D. (INCH.)	-0.0016
MIN. D. (INCH.)	-0.0016
MIN. D. (INCH.)	-0.93
MIN. D. (INCH.)	-0.74
MIN. D. (INCH.)	-0.0



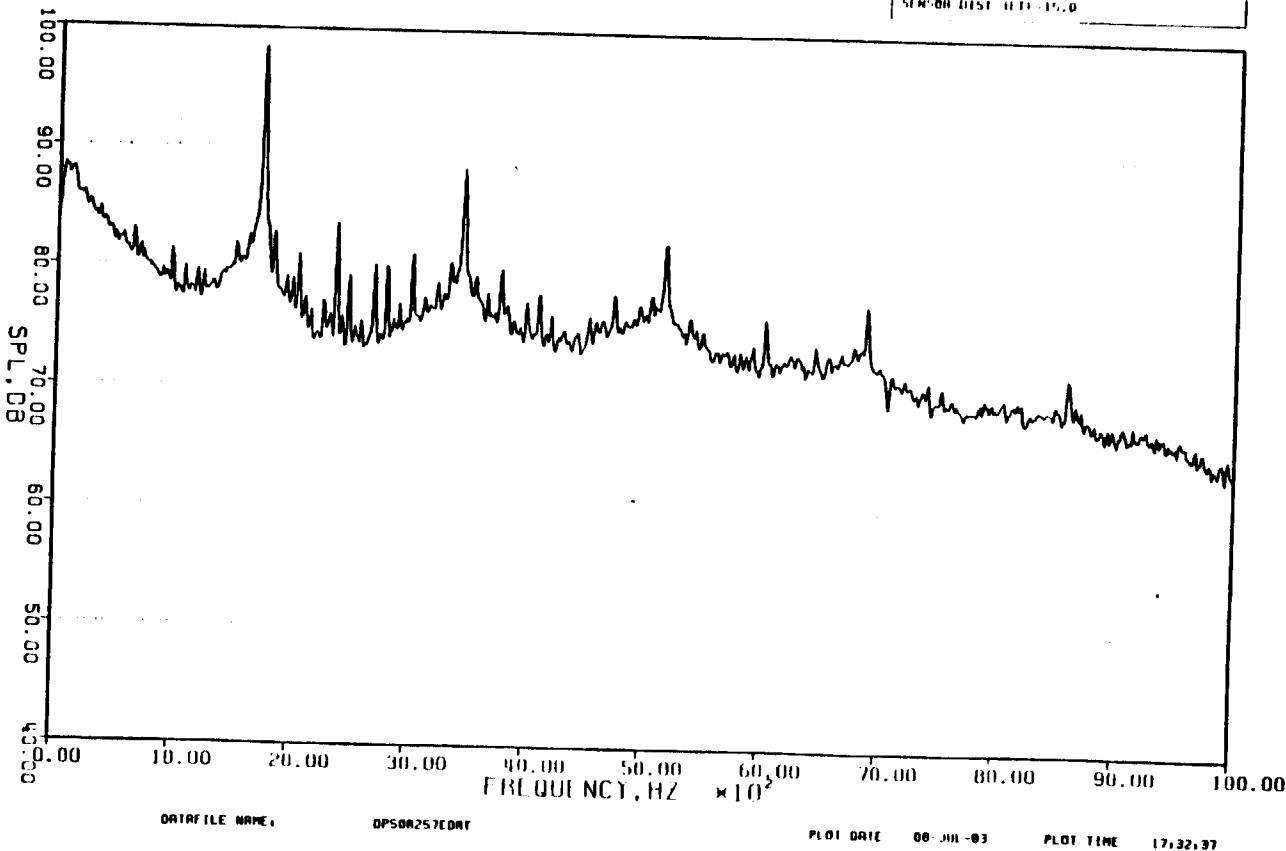
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## Appendix 9.2.8.f

## AVERAGED SPECTRUM

60 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: 1170 , 30 IPS  
 FAN = 3250 RPM . CORE = 12650

RUN NO.	-8
DATA NO.	-257
DAY	-1733
NO. OF BLADES	-35
TEMP MEL (DEG.F)	-60.0
BINAR PRESS (PSI)	-214.50
BLADE SIZE (INCH)	-214.8
BLADE SPAC (INCH)	-25.600
REC'D TIME (EST)	-10.000
REC'D TIME (ACT)	-8
AVG RATES	-100
MINIMUM DIA (INCH)	-1.1
MINIMUM DIAM (MM)	-28
SUM PSIZVOL - 0.0016	
SUM PSIZVOL - 10	
SUM CHL (INCH) - 0.91	
SUM CHL (MM) - 23	
SUM DIST (INCH) - 10.0	



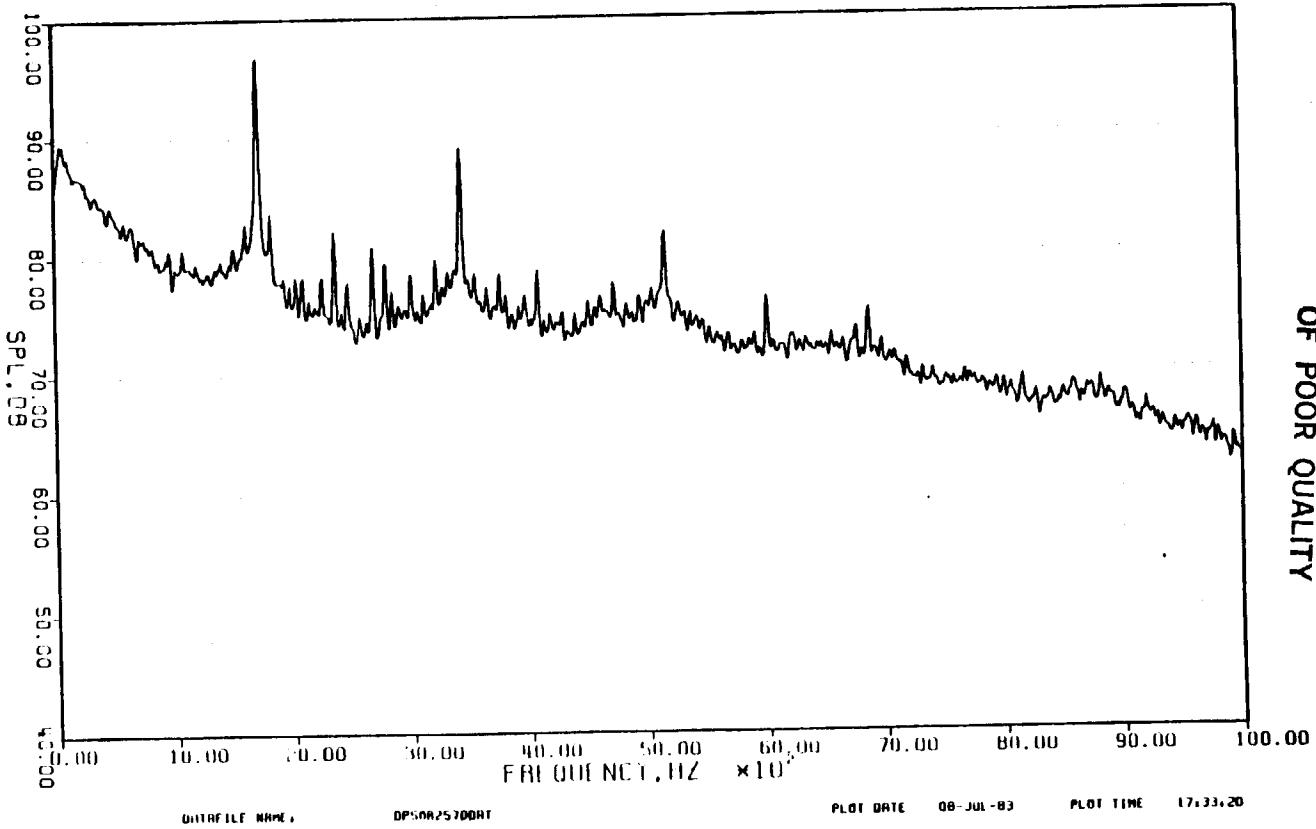
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Appendix 9.2.8.g

AVERAGED SPECTRUM

70 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: 1170 . 30 IPS  
 FAN = 3250 RPM . LORE = 12650

RUN NO.	-8
POINT NO.	-257
DATE	-1733
NO. OF BLADES	-375
TEMP M/T (DEG.F.)	-68.0
TEMP M/T (DEG.C.)	-20.0
BLADE PESS (MM)	-29.50
BLADE SIZE	-2048
SAMP RATE (HZ)	-5.000
A-A FILTER (HZ)	-10.000
INTERV TIME (SEC)	-1.000
OVERLAP (%)	-100
WINDOW (HZ)	-1.0
WINDOW (MM)	-1.0
SENSOR PS1/VOL1	-0.0016
SENSOR GAIN (DB)	-10
SENSOR CH1 RMS	0.42
SENSOR CH1 INT	-1.4
SENSOR DIST (IN)	-15.0

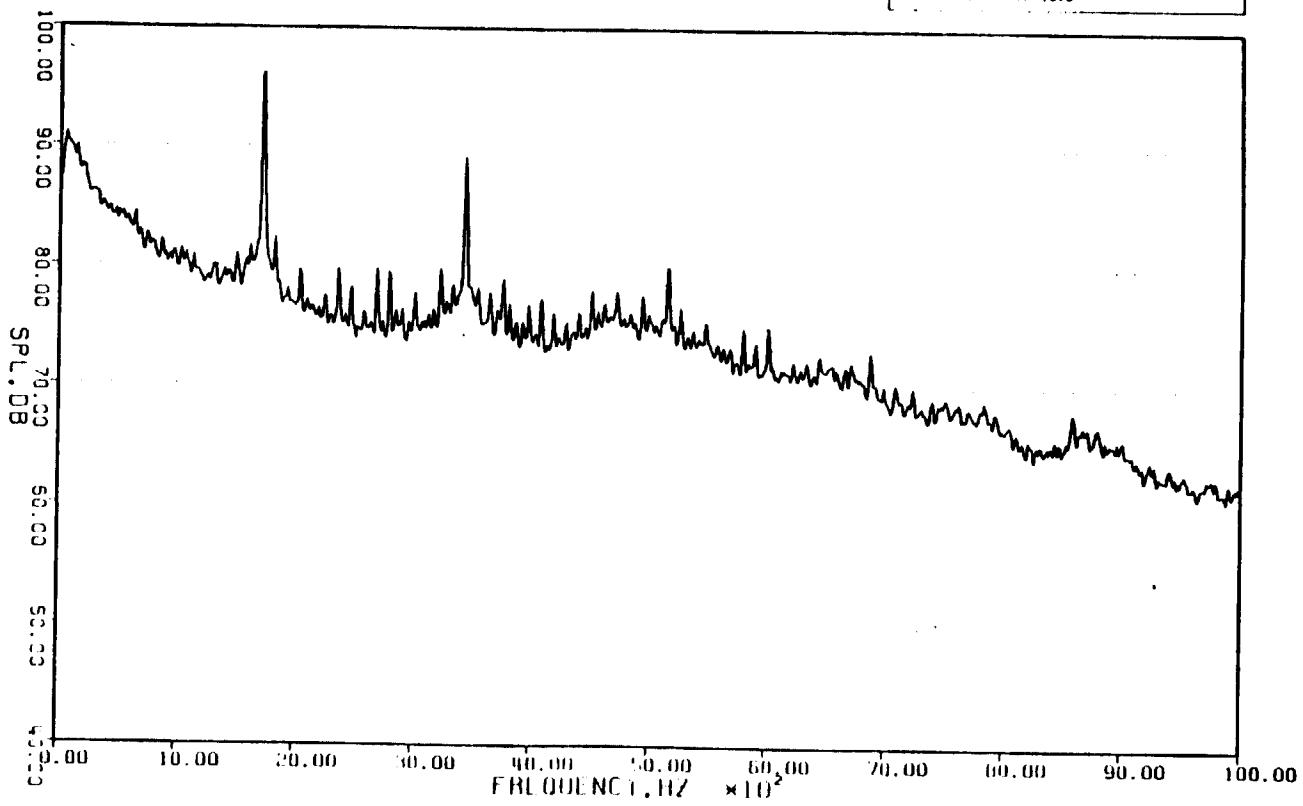


## Appendix 9.2.8.h

## AVERAGED SPECTRUM

80 DEG G/P  
 E CUBED PEERLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DRIE: 8-JUN-83  
 THPE: 1170 , 30 IPS  
 FAN = 3250 RPM , COHE = 12650

RUN NO.	-8
POINT NO.	-257
HPF	-1733
NO. OF BLADES	-32
NO. OF GEAR G.F.	-75.0
TIME WLT. (SEC.)	-0.0
IMAG. PRESS (INCH)	-29.50
INDEX SIZE	-2048
SAMP RATE (INCH)	-25.000
DATA TIME (INCH)	-10.000
WAVELET TIME (SEC)	-0.0
WAVELET WIDTH (INCH)	-100
WAVELET ID	-13
WAVELET NO.	-1
SENSOR PSV (INCH)	-0.0016
SENSOR DIAH (INCH)	-10
SENSOR FREQ (HZ)	-0.90
SENSOR FREQ (HZ)	-124
SENSOR DIST (INCH)	-15.0



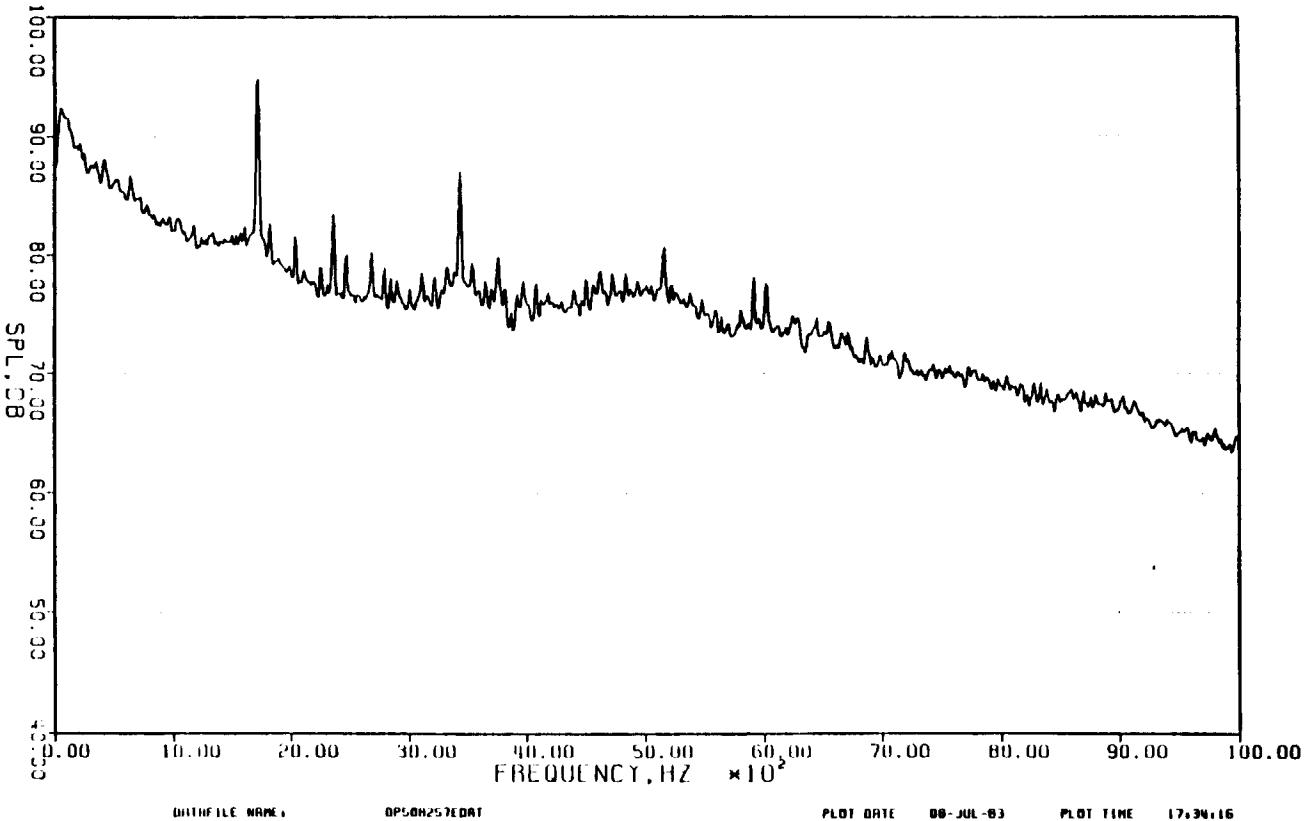
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### Appendix 9.2.8.i

#### AVERAGED SPECTRUM

90 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D , DATE: 8-JUN-83  
TAPE: 1170 , 30 IPS  
FHN = 3250 HPM , CORE = 12650

HUN NO.	• 8
POINT NO.	• 253
DPF	• 1733
OF BLADES	
TEMP DRY (DEG.F)	• 75.0
TEMP WET (DEG.F)	• 68.0
WIND PRESS (IN.HG)	• 29.50
BULK SIZE	• 2048
SAMP RATE (HZ)	• 55.600
REC RATE (HZ)	• 0.000
REC TIME (SEC)	• 9
REC HZ	• 100
WINDOWSIZE (HZ)	• 1.1
WINDOWOVER (HZ)	• 1
SENSOR P1/VOL	• 0.0016
SENSOR GAIN (V/D)	• 10
SENSOR GAIN (HRS)	• 0.93
SENSOR THRESHOLD	• 1.24
SENSOR DIST (ft)	• 15.0

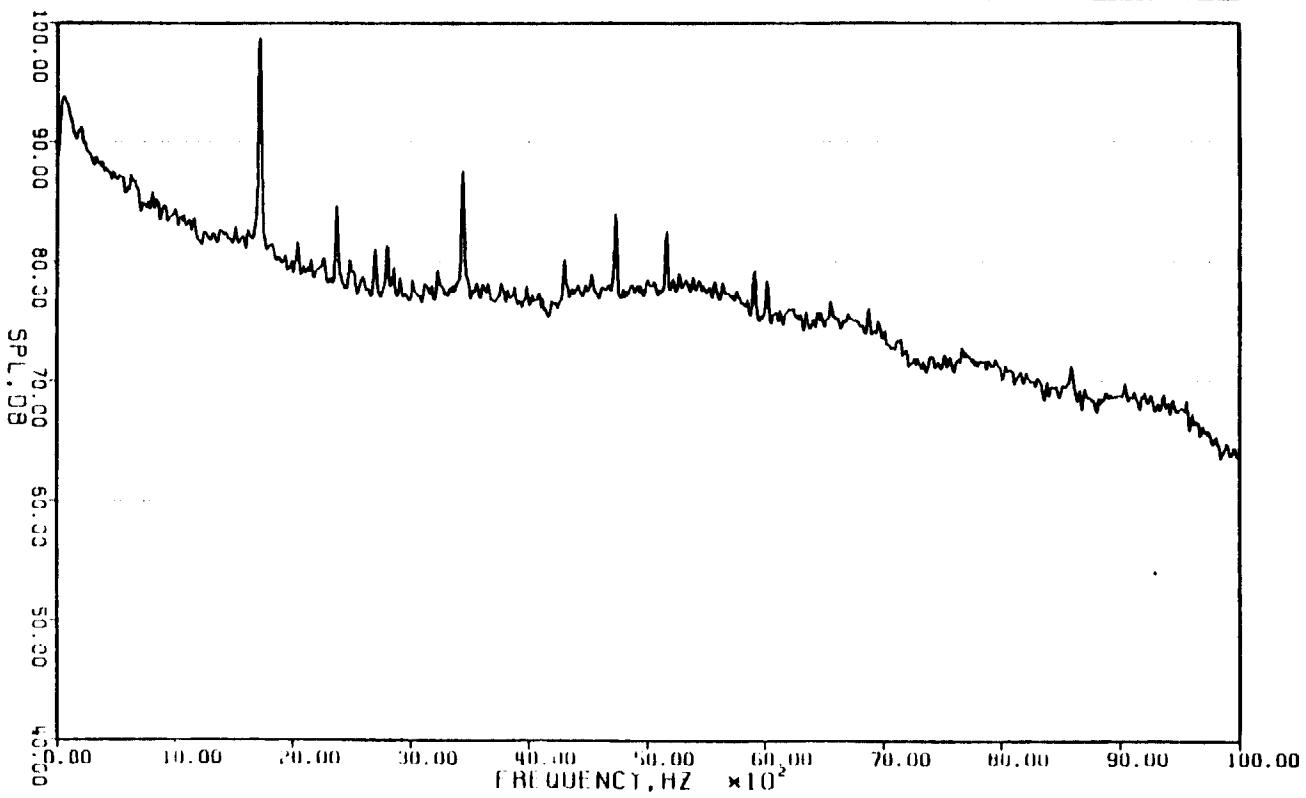


## Appendix 9.2.8.j

## AVERAGED SPECTRUM

100 DEG G/P  
 E CUBED PEBBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40, DATE: 8-JUN-83  
 TAPE: 1170, 30 IPS  
 FAN = 3250 RPM, CORE = 12650

RUN NO.	-8
POINT NO.	-257
WT. OF BLADES	-1.33
WT. OF BLADES	-32
TEMP DRY (DEG.F)	-75.0
TEMP WET (DEG.F)	-68.0
WIND PRESS (INHG)	-29.50
BLADE SIZE	-2048
SHWF. WHITE (INCH)	-25.000
SHWF. BLACK (INCH)	-10.000
WIND DIR (SEC)	-0.000
BLADES	-100
BLADE WIDTH (INCH)	-13
MIN.DRAG (1-HORN)	-1
SENSOR PSI/VOL.1	-0.0049
SENSOR PSI/VOL.2	-0.0049
SENSOR CEM (B) RMS	-0.95
SENSOR CEM (R) RMS	-124
SENSOR DIST (FT)	-15.0



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DATAFILE NAME:

DPS0025E04T

PLOT DATE 08-JUL-83

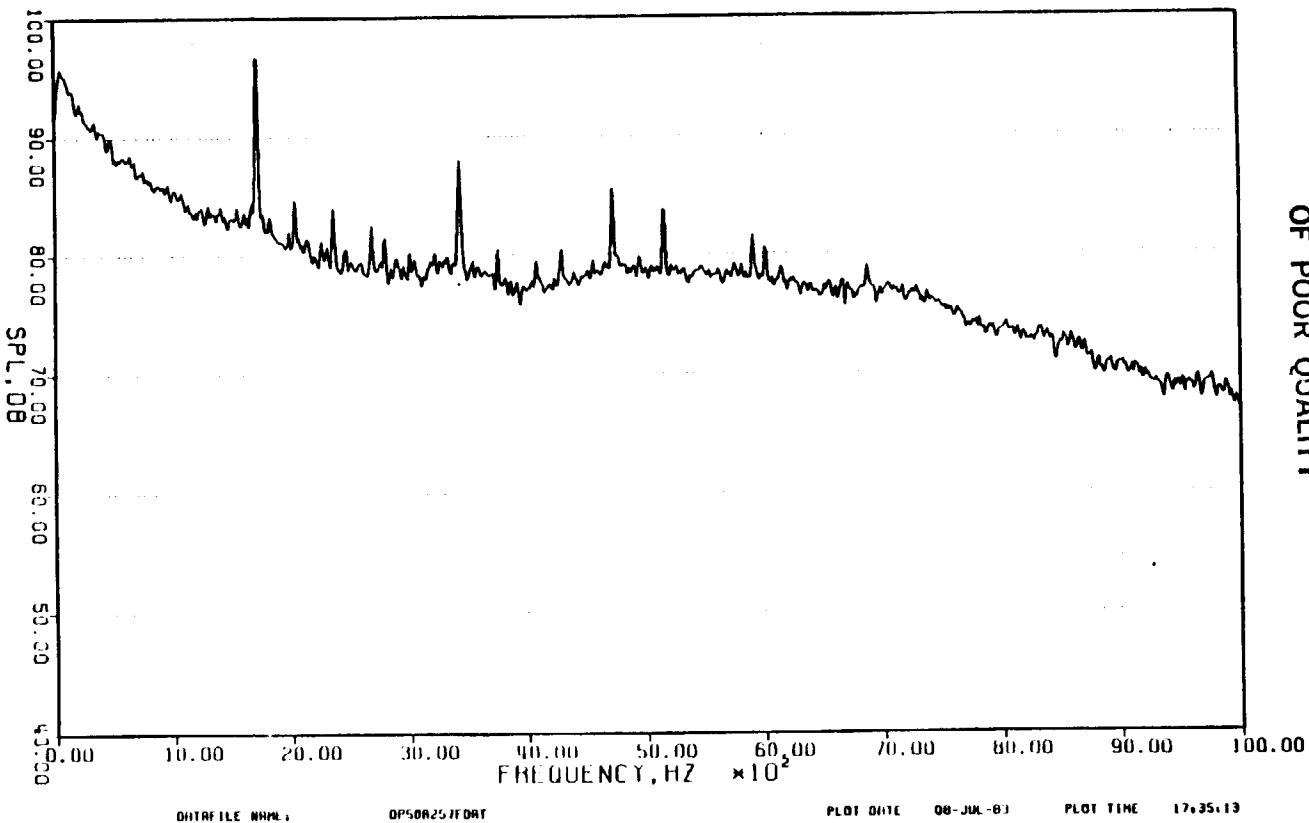
PLOT TIME 17:36:30

### Appendix 9.2.8.k

#### AVERAGED SPECTRUM

110 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 40 . DATE: 0-JUN-83  
TAPE: 1170 . 30 IPS  
FAN = 3250 RPM . COHE = 12650

RUN NO.	= 8
POINT NO.	= 257
PNT	= 2533
NFT OF BLADES	= 32
TEMP DRY (DEG.F)	= 75.0
TEMP WET (DEG.F)	= 68.0
HMP PIN 55 (*HMP)	= 29.50
BULK SIZE	= 2048
CHAM SITE (RH%)	= 25.000
CHAM SITE (THERM%)	= 0.000
REC TIME (SEC)	= 6
REC HOURS	= 100
REC MINUT	= 13
REC SECOND	= 1
SENRSH PS1/VOL1	= 0.0050
SENRSH CAP1 (HMP)	= 0
SENRSH CAP2 (HMP)	= 0.93
SENRSH LNL PH1	= 124
SENRSH DIST1 (ft)	= 15.0

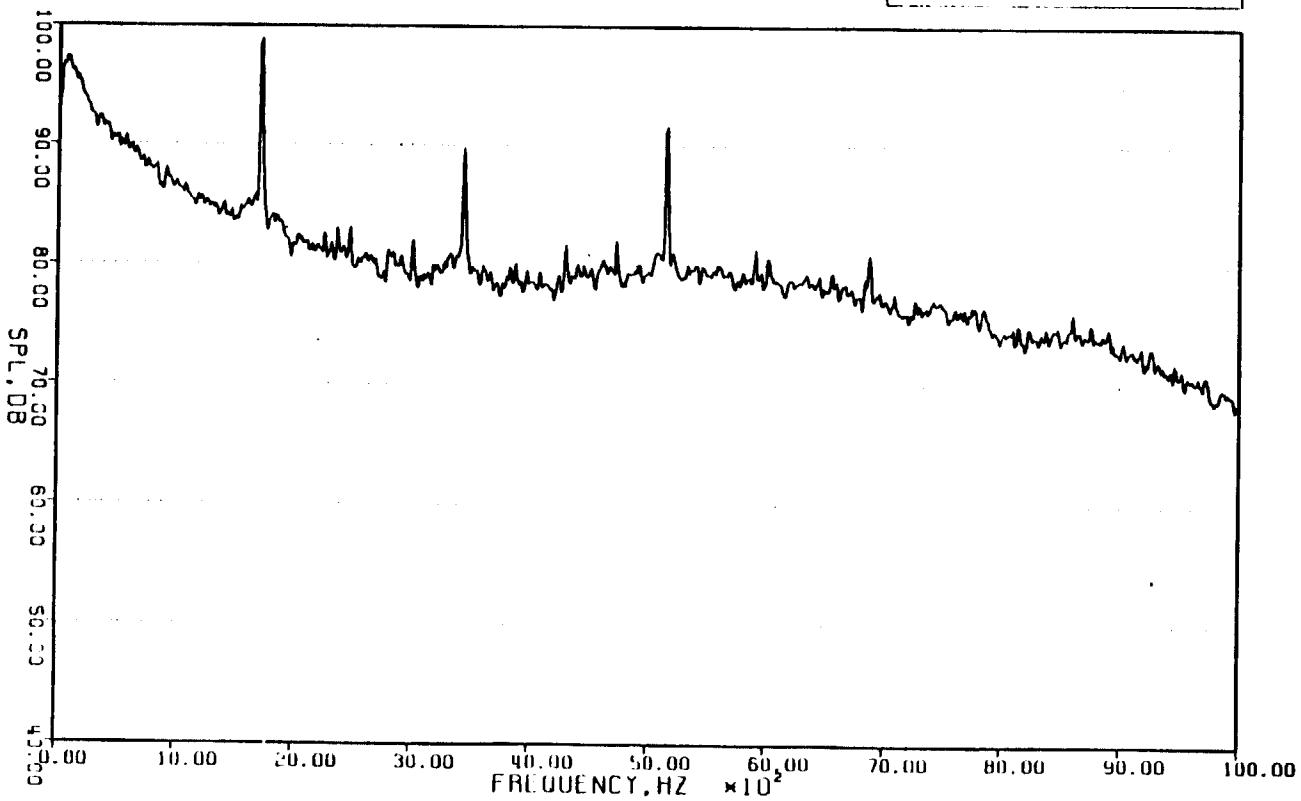


## Appendix 9.2.8.1

## AVERAGED SPECTRUM

120 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: 1170 , 30 IPS  
 FAN = 3250 RPM , CORE = 12650

RUN NO.	-8
POINT NO.	-257
DPF	-1733
NO. OF BLADES	-5
TEMP DAY (DEG.F)	-75.0
TEMP NIGHT (DEG.F)	-68.0
BIRD PRESS (TMS)	-29.50
BLADE SIZE	-2048
SHMP RATE (IN/H)	-25.600
SPL FILTER (IN/H)	-10.000
RECORD TIME (LLC)	-
AVERAGING	-100
DIMINISH DM (IN/H)	-12
MINIMUM DM (IN/H)	-1
SENSOR PSI/VIN 1	-0.0050
SENSOR PSI/VIN 2	-0
SENSOR CM/H (MS)	-0.92
SENSOR CAL (ML)	-12
SENSOR DIST (IN)	-15.0



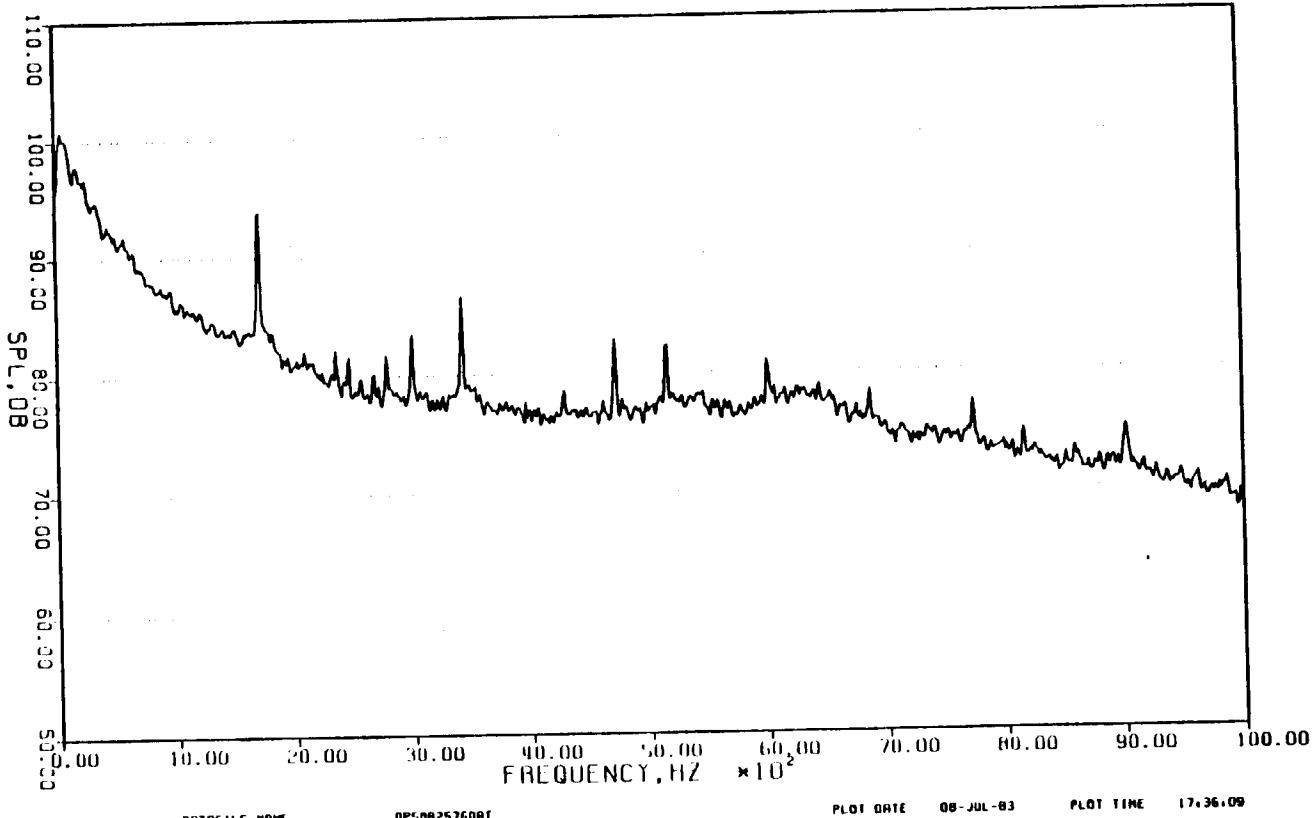
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Appendix 9.2.8.m

AVERAGED SPECTRUM

130 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: 1170 , 30 IPS  
 FAN = 3250 RPM , CORE = 12650

RUN NO.	-8
POINT NO.	-257
OPF	-1733
NO. OF BLINDS	-32
TEMP DAY (DEG.F)	-75.0
TEMP WT (DEG.F)	-75.0
BINAR PRESS (PSI)	-29.50
BLIND DECK SIZE (INCH)	-2048
SIMP RATE (KHZ)	-25.600
A/D FILTER (KHZ)	-10.000
ACQ TIME (SEC)	-8
AVG HZES	-100
HIGHMIDH (HZ)	-13
LOWMIDH (HZ)	-13
ALGOMA PSI/VOLT	-0.0051
SENSOR GAIN (DB)	-0
SENSOR CH 10 RMS	-0.91
SENSOR CH 11 RMS	-124
SENSOR DIST (FT)	-15.0



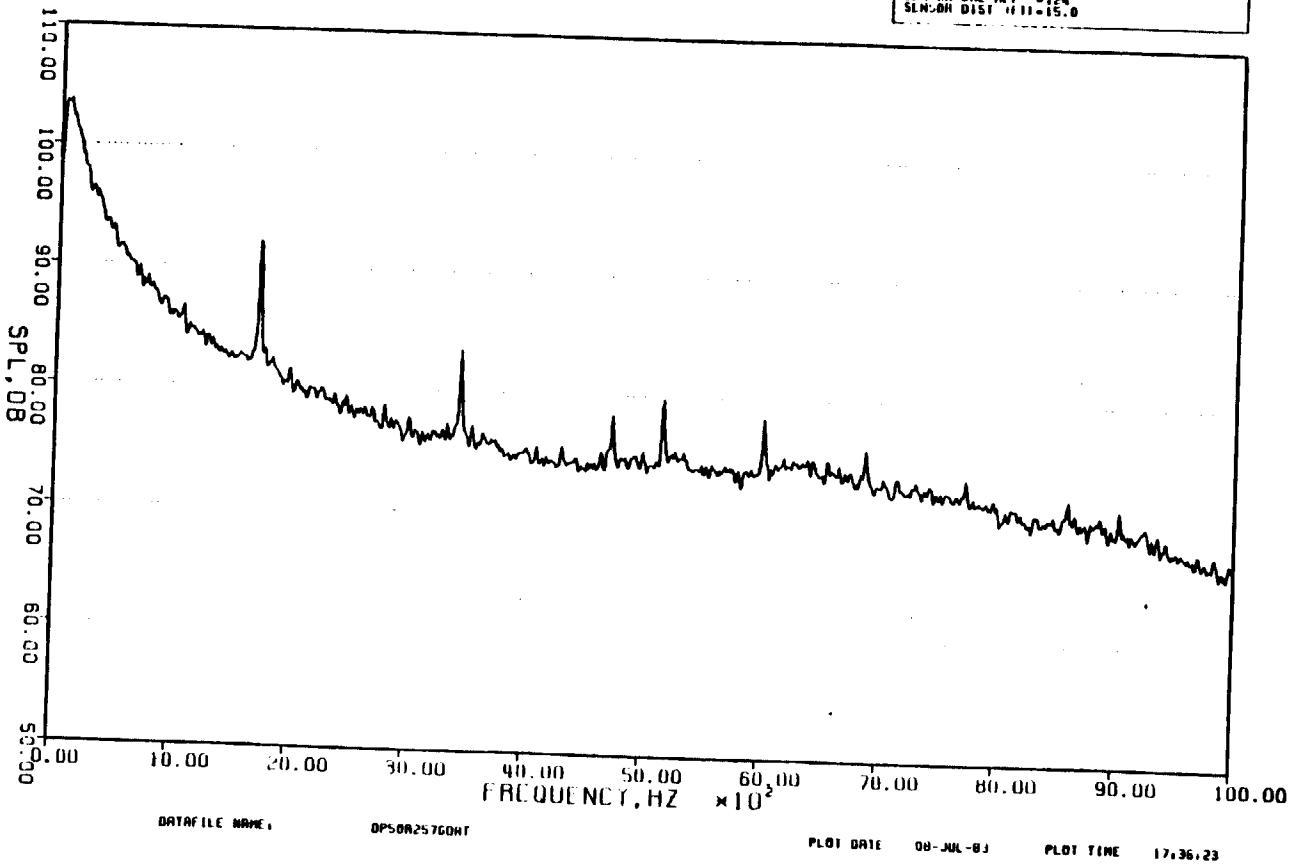
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## Appendix 9.2.8.n

## AVERAGED SPECTRUM

140 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: 1170 . 30 IPS  
 FHN = 3250 RPM , CORE = 12650

RUN NO.	-8
POINT NO.	-257
DATAFILE	-1733
NO. OF BLADES	-
TEMP DRY (DEG.F)	-75.0
TEMP WET (DEG.F)	-68.0
BINCH PRESS 1" NG	-29.50
SLASH SIZE	-204.0
SLASH HOLE (INCH)	-25.500
R/H 1" TAPER (INCH)	-10.000
REL HUMID TIME (SEC)	-
R/H Holes	-100
MINIMUMDTH (INCH)	-13
MINIMUML (INCH)	-1
SEN1:INR (PSI/VOLT)	-0.0048
SEN1:INR (VOLTS)	-0
SEN1:INR (10 RMS)	-94
SEN1:INR (AVG)	-74
SEN1:INR (DIST)	-11.15.0



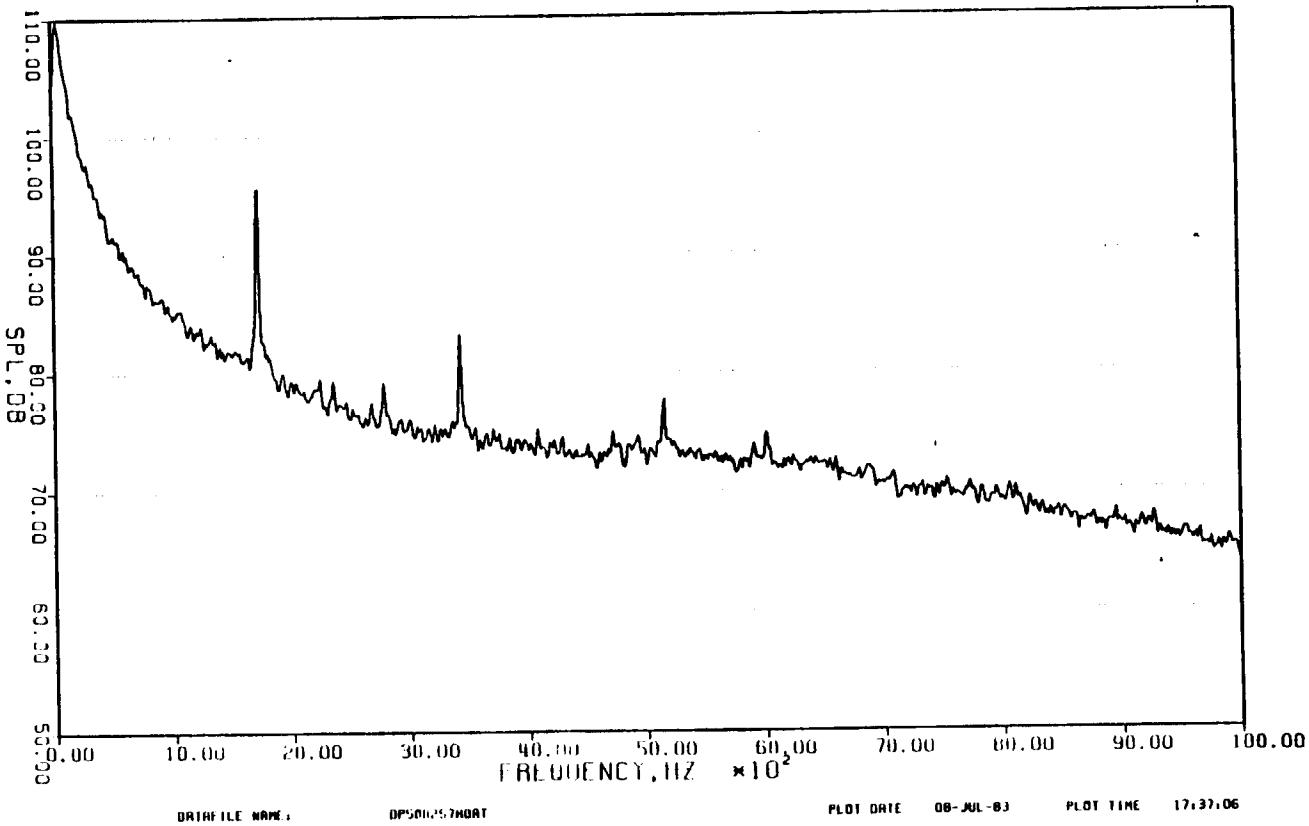
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Appendix 9.2.8.o

AVERAGED SPECTRUM

150 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: 1170 , 30 IPS  
 FAN = 3250 RPM , CORE = 12650

RUN NO.	=8
POINT NO.	=251
BPF	=1733
NO. OF BLADES	=32
TEMP ART (DEG.F)	=75.0
TEMP MFT (DEG.F)	=68.0
BINAR PRESS (PSI)	=24.50
BLADE SPAN (INCH)	=14.75
SAMP RATE (HZ)	=25.600
A/D FILTER (HZ)	=10.000
RECORD TIME (SEC)	=8
HVL HOLE(S)	=100
BLADE WIDTH (INCH)	=.13
MINIMUM HOLE (INCH)	=.1
MAX HOLE (INCH)	=.0051
GEN:00 CRIM:0001	
SEN:00 CR1A HRS:0.91	
SEN:00 CAL HRS:1.74	
SEN:00 DIST (ft):15.0	



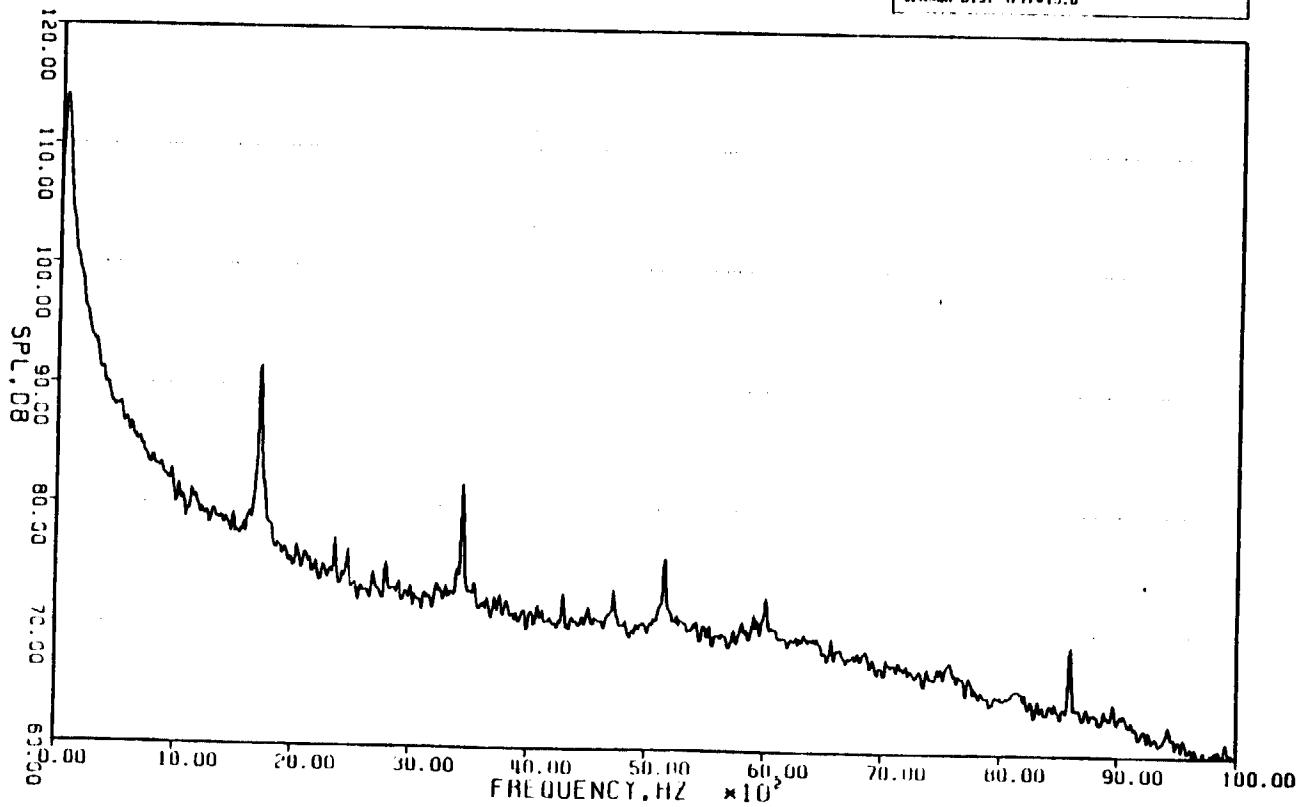
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## Appendix 9.2.8.p

## AVERAGED SPECTRUM

160 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY THRIATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: 1170 . 30 IPS  
 FAN = 3250 RPM . CURE = 12650

RUN NO.	-8
POINT NO.	-257
BPF NO.	-1733
NO. OF BLADES	-32
IMP. DIA (INCHES)	-75.0
IMP. HGT (INCHES)	-60.0
IMMO PHASE (*ANG)	-59.00
BLADE SIZE (*ANG)	-51.00
SHARP ANGLE (RAD)	-25.500
REFL. TIME (SEC)	-10.000
REFL. DIST (INCH)	-0
MIN. WIDTH (INCH)	-1.00
MIN. HGT (INCH)	-1.3
MIN. HGT (INCH)	-1
SENSOR PS1/VOL	-0.0051
SENSOR GAIN (DB)	-8
SENSOR LMT (DB)	-0.89
SENSOR LMT (RAD)	-124
SENSOR DIST (IN)	-15.0



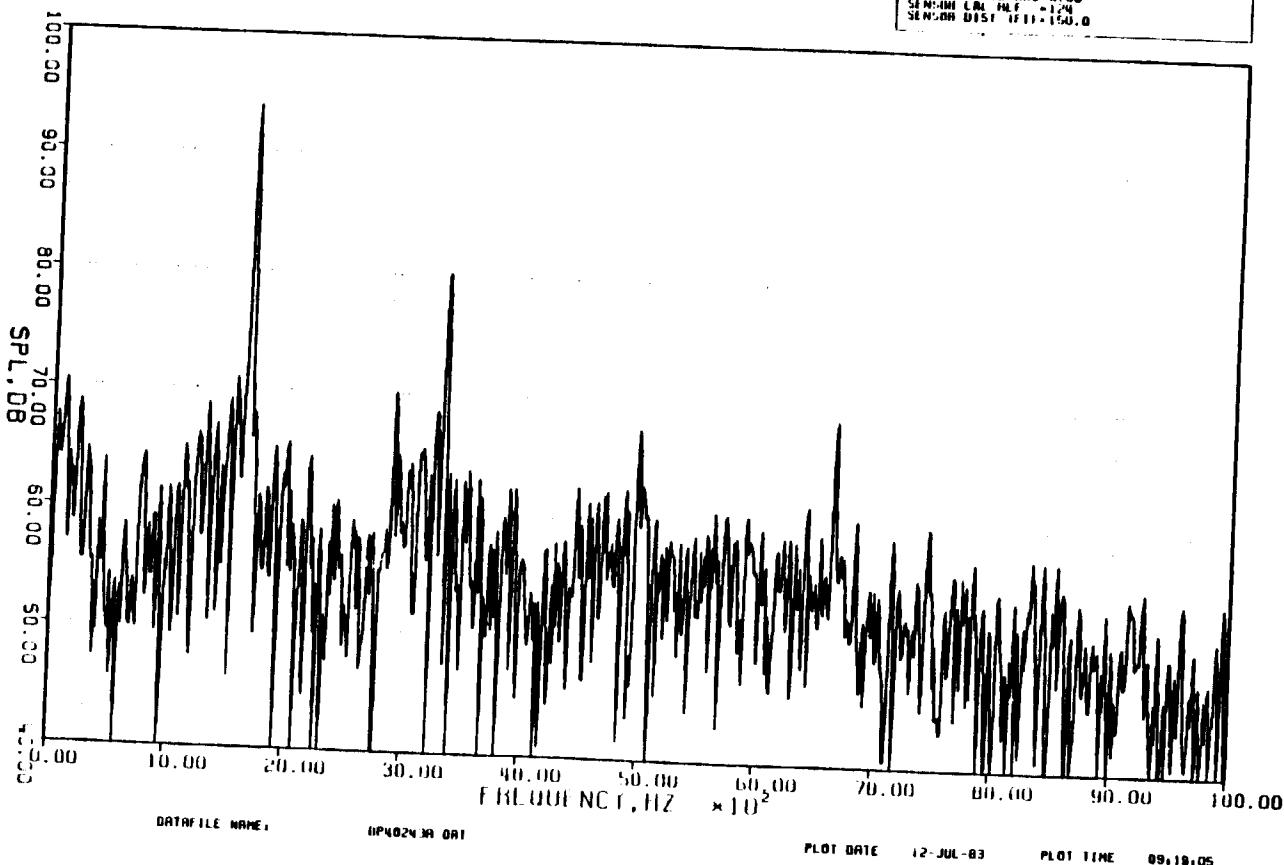
9.3      ENHANCED SPECTRUM

## Appendix 9.3.1

## ENHANCED SPECTRUM

10 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 6-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM, COR =FAN = 3113

RUN NO.	=13
POINT NO.	=243
PPM	=1560
NO. OF BLADES	=32
TEMP DHT (DEG.F)	=85.0
TEMP WHT (DEG.F)	=85.5
BHQD PRESS (LBS)	=28.50
BLDG K SIZE	=2148
SHPD WHT (INCH)	=25.600
HV1 (1E6 INCH)	=10.000
HV1 CONV TIME (SEC)	=0
HV1 RING 1	=100
MINIMUM(1000 HZ)	=1
MINIMUM(10 HZ)	=1
SEMINUM PSV/VOLT	=0.0016
SEMINUM GAIN (DB)	=10
SEMINUM GAIN RMS	=0.90
SEMINUM LOW HLF	=120
SEMINUM DIST (FT)	=50.0



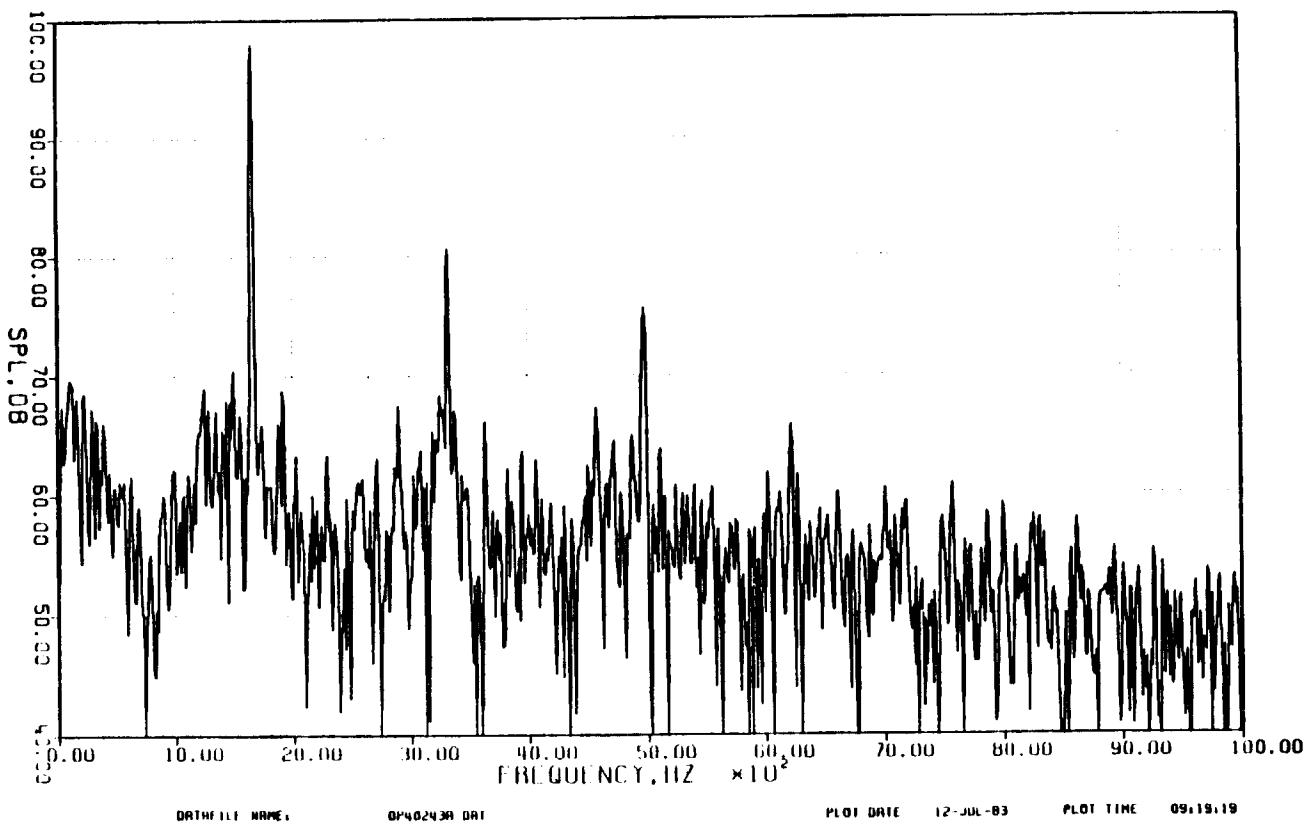
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### Appendix 9.3.2

#### ENHANCED SPECTRUM

20 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D . DATE: 8-JUN-83  
TAPE: E315 . 30 IPS  
FAN = 3113 RPM, COR +FAN = 3113

RUN NO.	=13
POINT NO.	=243
BPF	=1660
NO. OF SLEEPS	=1
TEMP DATA (DEG.F)	=65.0
TEMP MET (DEG.F)	=54.5
BINNO PHASES	=29.50
BINNO SIZE	=2048
SIMP. DATA (BINZ)	=20.000
RT. DATA (BINZ)	=10.000
RT. DATA (BINZ)	=10.000
RT. DATA (BINZ)	=10.0
BINNO WIDTH (BINZ)	=1.0
MINIMUM DT (BINNO)	=1
SENSE DT (DT/VOLT)	=0.0016
SENSE DT (DT/VOL)	=0.0016
SENSE DT (HR RMS)	=0.09
SENSE DT (HR RMS)	=0.09
SENSE DT (HR RMS)	=124
SENSE DT (DT/VOLT)	=150.0



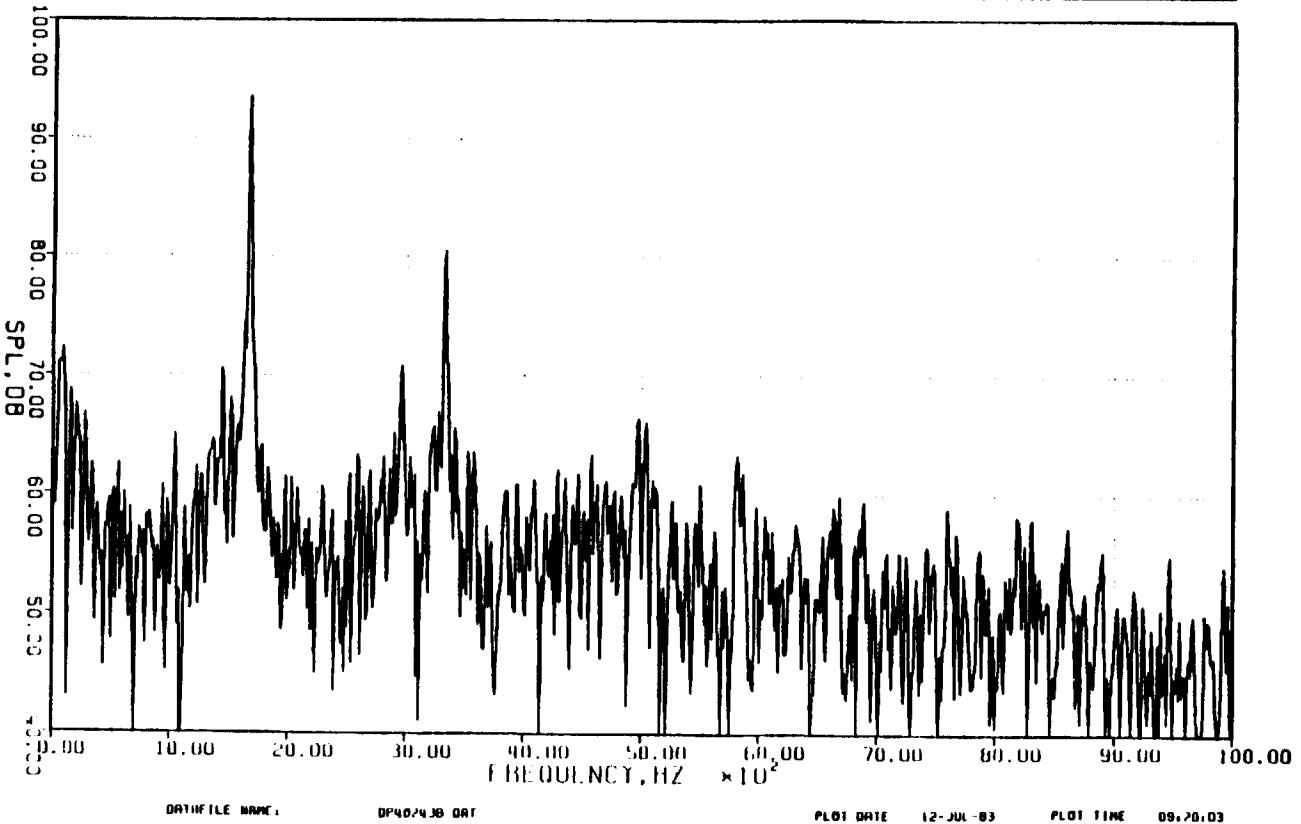
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## Appendix 9.3.3

## ENHANCED SPECTRUM

30 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FHM = 3113 RPM, EDW = FAN = 3113

RUN NO.	= 13
POINT NO.	= 243
BPF	= 1660
NO. OF BLADES	= 62
NEW DRY (DEG. F)	= 62.0
TEMP. WET (DEG. F)	= 54.5
BHRN PRESS (IN Hg)	= 28.50
BLIND SIZE (INCHES)	= 214.0
SIMUL. RATE (INCHES)	= 25.600
A/V (1.11) (INCHES)	= 0.000
MAX. ROLL TIME (SEC.)	= 0
ROLLING H.S.	= 100
MINIMUM DTH (INCHES)	= 13
MINIMUM (1)-HARDNESS	= 1
SIMUL. PSI/VOLT	= 0.0016
SIMUL. GRIN (INCH)	= 10
SIMUL. GRIN TO RMS	= 0.90
SIMUL. GRIN (MM)	= 12
SIMUL. DIST (MM)	= 150.0



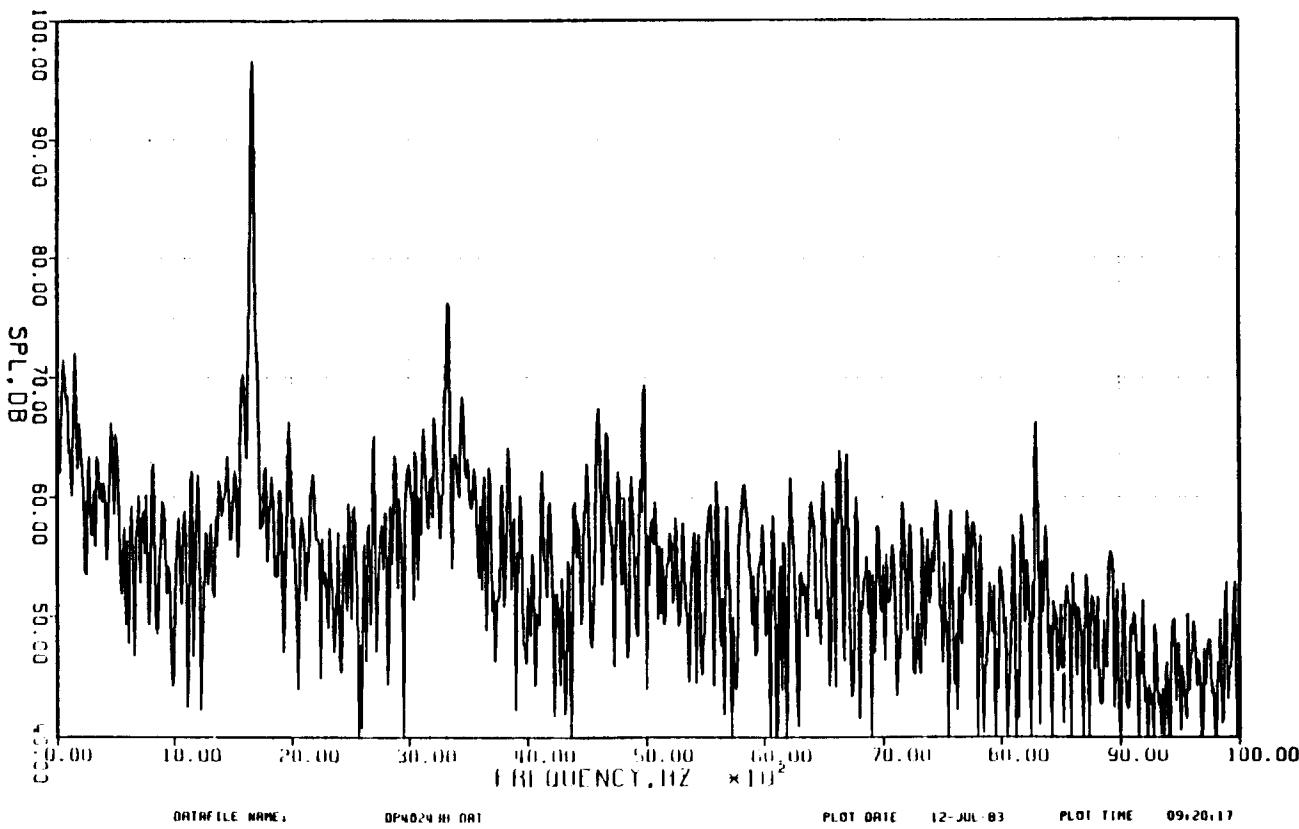
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### Appendix 9.3.4

#### ENHANCED SPECTRUM

40 DEG G/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 40 , DATE: 8-JUN-83  
TAPE: E315 , 30 IPS  
FAN = 3113 RPM, COH +FAN = 3113

RUN NO.	-13
POINT NO.	-243
BPF	-1660
NO. OF BLADES	-32
TEMP DRY (DEG.F)	-65.0
TEMP WET (DEG.F)	-54.5
BAND PRESS (MG)	-25.50
BINN A (HZ)	-24.000
SIMP A (HZ)	-24.500
A/D F (HZ)	-10.000
REFLECT TIME (SEC)	-0
AVG HZ:	-100
NUMBER OF HZ:	-13
MINIMUM (A) (DB):	-0.0016
MAX (A) (DB):	-10
SEN00 CH10 RMS	-0.93
SEN00 LNL MET	-1.74
SENSOR DIST (FT)	-150.0



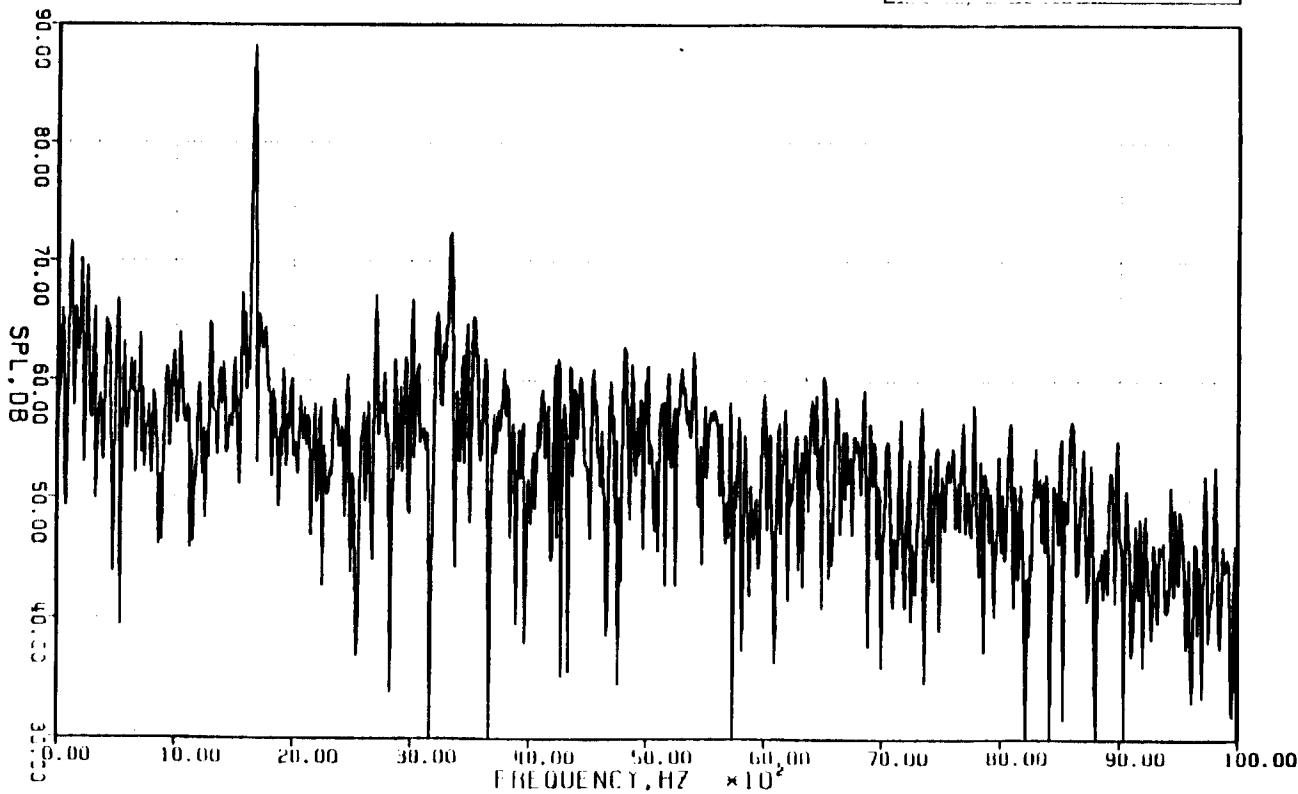
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## Appendix 9.3.5

## ENHANCED SPECTRUM

50 DEG C/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 3113 RPM, COR = FAN = 3113

RUN NO.	-13
POINT NO.	-243
NO. OF BLANKS	-300
NO. OF POINTS	-300
TEMP DRY (DEG.F)	-65.0
TEMP WET (DEG.F)	-54.5
BINDED PRESSURE (PSI)	-29.50
BINDED SIZE	-21MB
SHEAR WAVE (MM/MM)	-25.500
REFLECTION COEFFICIENT	-0.000
ACQUISITION TIME (SEC)	-0.000
AVERAGES	-100
BINNINGDEPTH (MM)	-13
MINIMUM (MM)	-1
SEISMIC PSV/VOLT	-0.0016
SEISMIC GEAR (MM)	-0.001
SEISMIC IN 10 HNS	-0.93
SEISMIC LIM MM	-1.4
SEISMIC DIST (FT)	-150.0



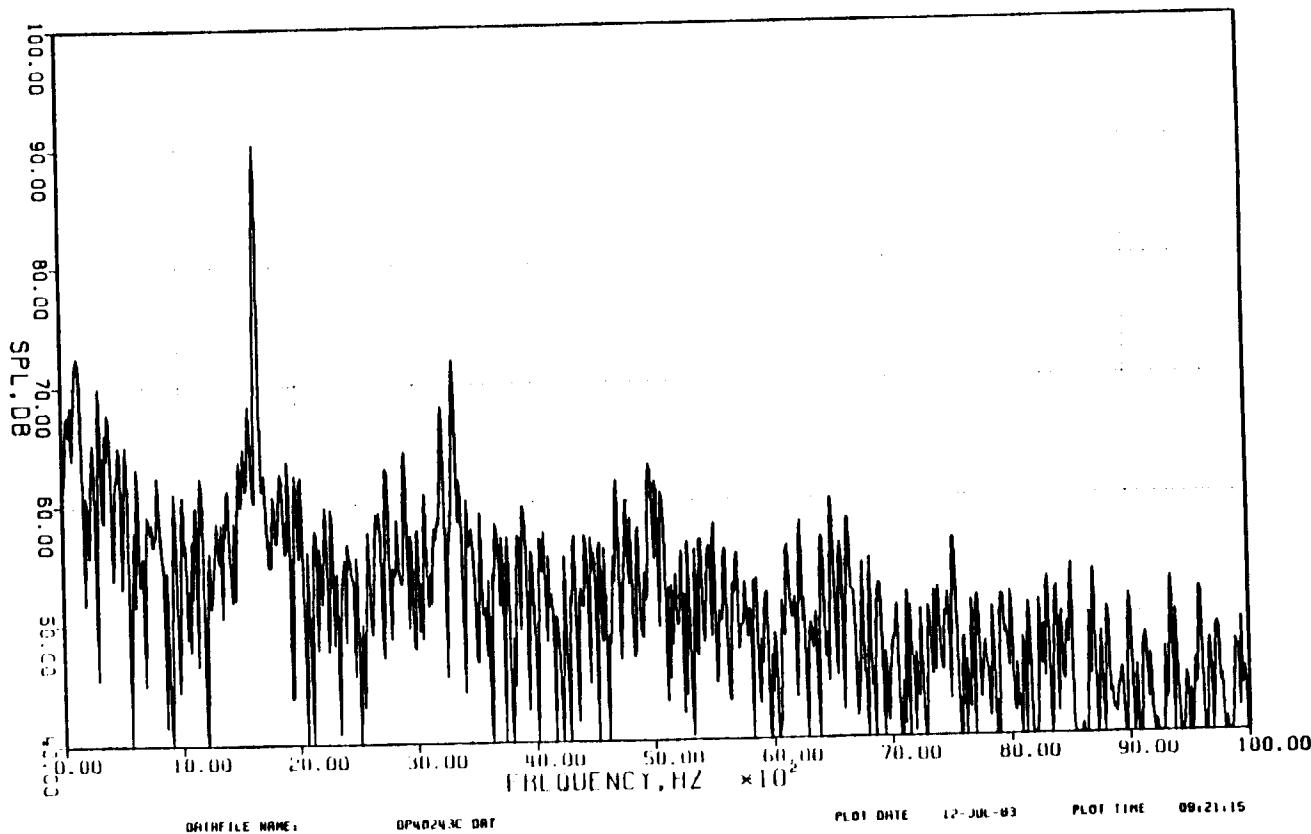
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### Appendix 9.3.6

#### ENHANCED SPECTRUM

60 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E313 , 30 IPS  
 FAN = 3113 RPM, COR +FAN = 3113

RUN NO.	=13
POINT NO.	=243
BPF	=1660
NO. OF BLADES	=32
TEMP DRY (DEG.F)	=65.0
TEMP WET (DEG.F)	=59.5
POWER PER 55" HGT (W)	=31.50
BLADE SPAN	=2.0000
SUPER. HGT (INCH) (22.600)	
B-11.11 (INCH) (10.000)	
BLADE SPAN (INCH) (8)	
BLADE SPAN (MM) (200)	
BLADE SPAN (MM) (190)	
BLADE SPAN (MM) (180)	
BLADE SPAN (MM) (170)	
SENU-B1 (VOLTS) (0.0016)	
SENU-B1 (COUN. HRS) (10)	
SENU-B1 (COUN. HRS) (0.91)	
SENU-B1 (COUN. HRS) (1.2%)	
SENU-B1 (COUN. HRS) (15.0)	



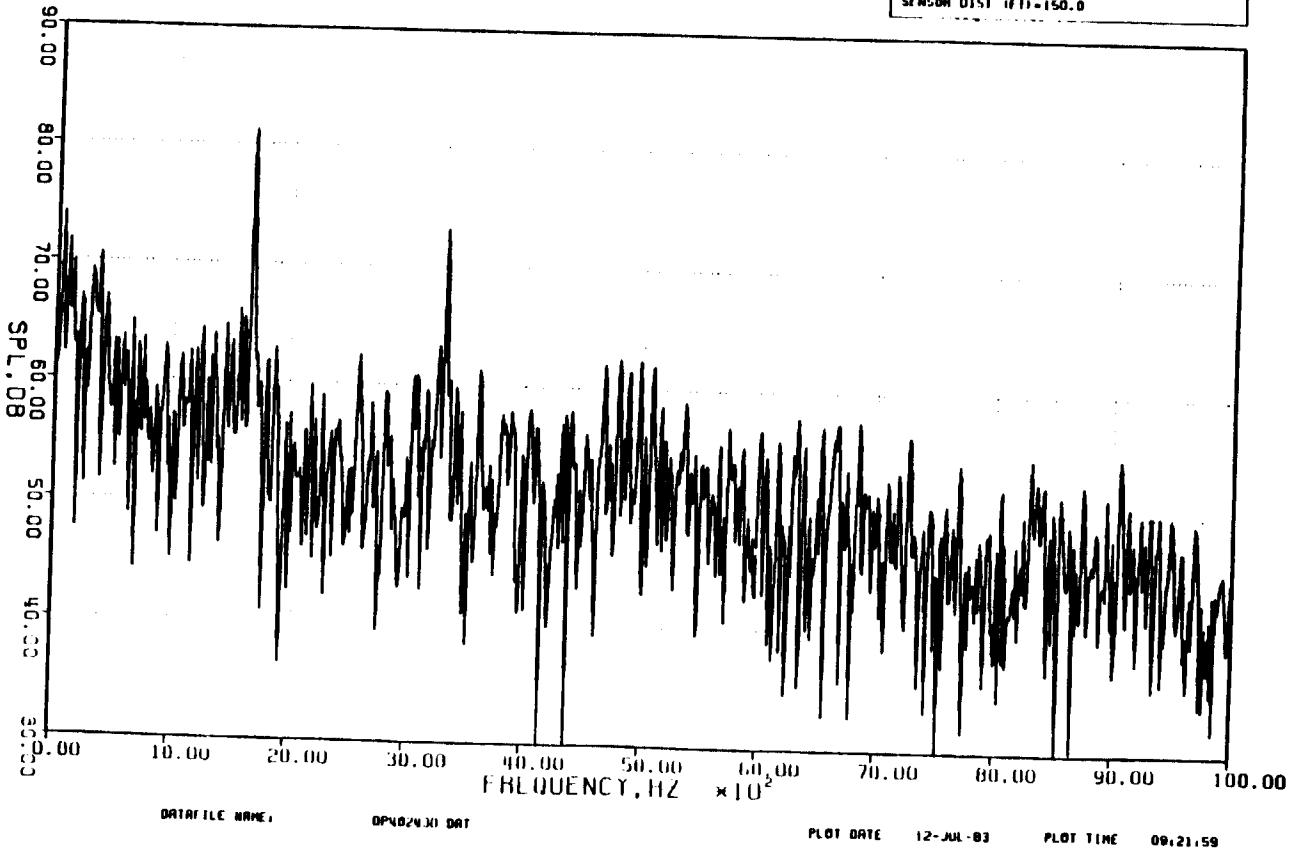
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## Appendix 9.3.7

## ENHANCED SPECTRUM

70 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM, COR = FAN = 3113

RUN NO.	= 13
POINT NO.	= 243
DPF	= 1650
NO. OF BLADES	= 32
TEMP DAY (DEG.F)	= 65.0
TEMP NIGHT (DEG.F)	= 54.6
BINDED PRESSURE (PSI)	= 29.58
BLADE FREQ (HZ)	= 2148.8
SIMP RATE (HZ)	= 20.000
A-H 1 (ITERATION)	= 10.000
RECORD TIME (SEC)	= 0.000
AVG RATES	= 100
THRESHOLD (DBLZ)	= 13
MINIMUM (DBM)	= 0
SENSOR POSITION = 0.0016	
SENSOR CH1 (DBM)	= 10
SENSOR CH18 (DBM)	= 0.92
SENSOR CH4 (DBM)	= 124
SENSOR DIST1 (FT)	= 150.0

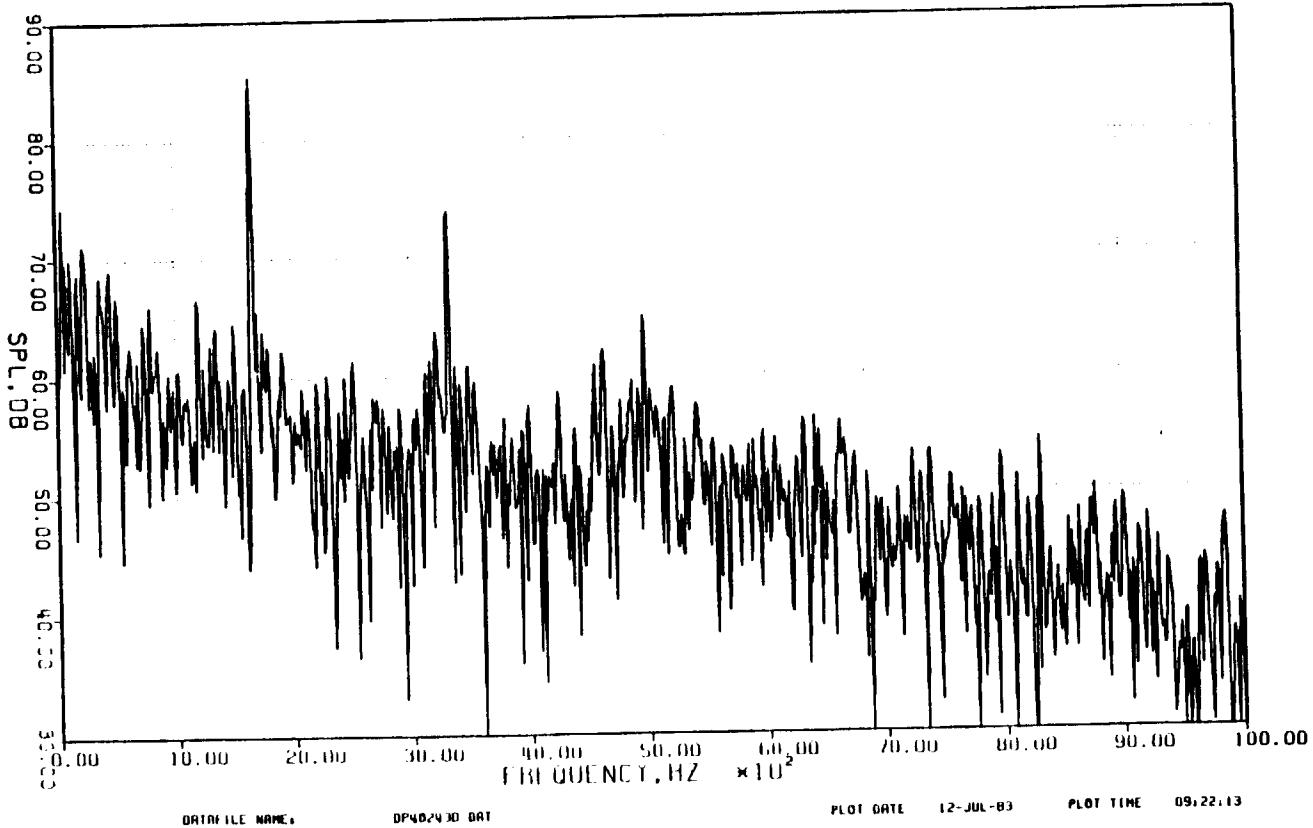


### Appendix 9.3.8

#### ENHANCED SPECTRUM

80 DEG C/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE NO : DATE: 8-JUN-83  
TAPE: E315 , 30 IPS  
FAN = 3113 RPM, COR = FAN = 3113

RUN NO.	-13
POINT NO.	-243
SPF	-1660
NO. OF BLADES	-32
TEMP DAT (DEG.F)	-66.0
TEMP MTR (DEG.F)	-54.5
BINNO PMS5 (MG)	-1.50
REC'D TIME	-20448
SUMM. RMT (MM)	-75.000
0.114111 RMT (MM)	-10.000
REC'D TIME (SEC)	-0
SYNTHESYS	-100
DISPONITR (HZ)	-1.0
WINDING THERM (DEG.C)	-0.0016
SEN.001 GAIN (DB)	-10
SEN.001 GAIN (MM)	-0.01
SEN.001 GAIN (HZ)	-1.4
SEN.001 DIST (FT)	-150.0



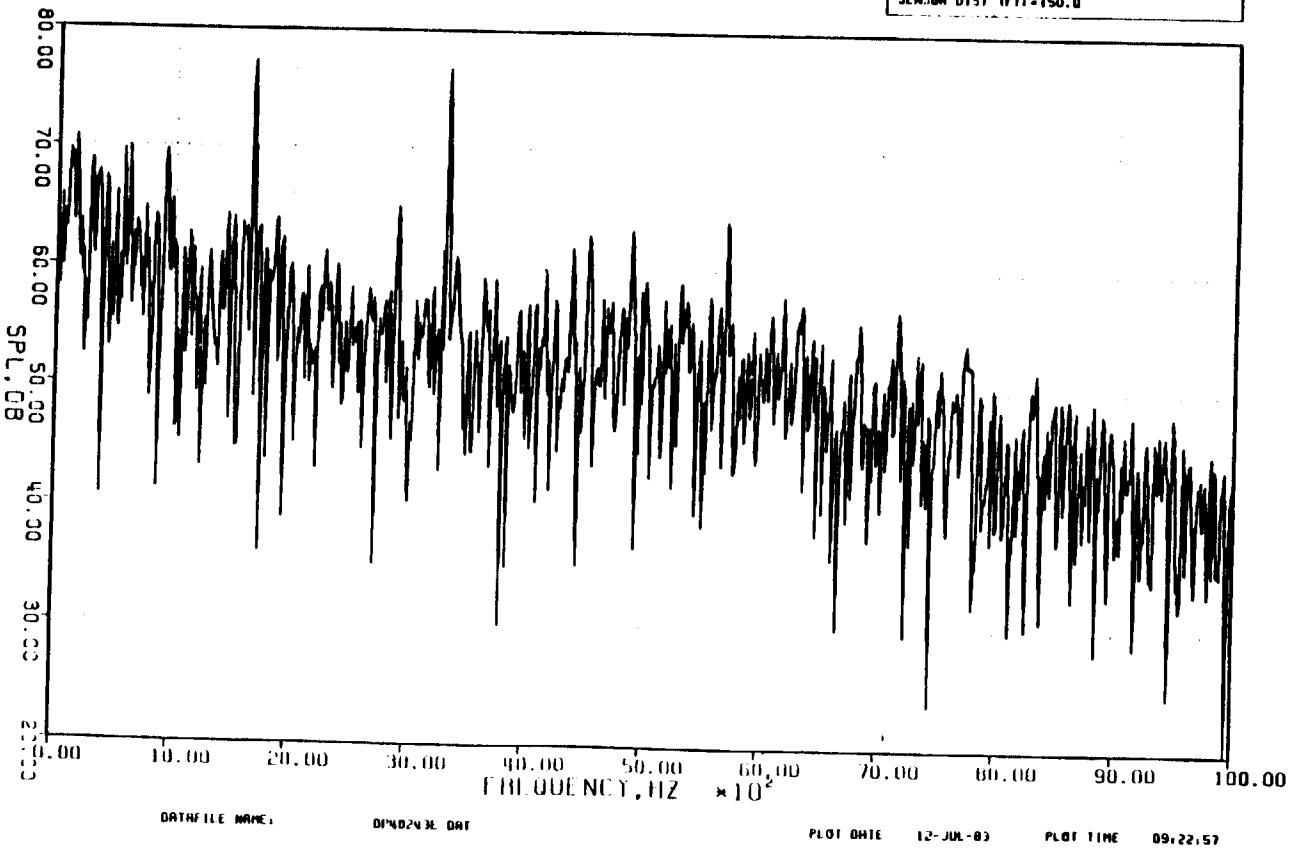
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## Appendix 9.3.9

## ENHANCED SPECTRUM

90 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FHN = 3113 RPM, COR +FAN = 3113

RUN NO.	= 13
POINT NO.	= 243
BPF	= 1560
NO. OF BLOBS	= 32
TEMP DRY (DEG.F)	= 65.0
TEMP WET (DEG.F)	= 65.0
AMBI. PRESS (INHG)	= 29.50
AMBI. SIZZ	= 21M8
SIMP. HARM. (HZ)	= 75.000
A/F (1/HARM) (HZ)	= 10.000
INTERV TIME (SEC)	= 0
INTERV S	= 100
INTERV HARM (HZ)	= 15
MINIMUM (1/HARM)	= -
SEMIN. PSV/VOLT	= 0.0016
SEMIN. CRIM (DB)	= 10
SEMIN. CRIM RMS	= 0.93
SEMIN. CRIM ALT	= 124
SEMIN. DIST (FT)	= 150.0



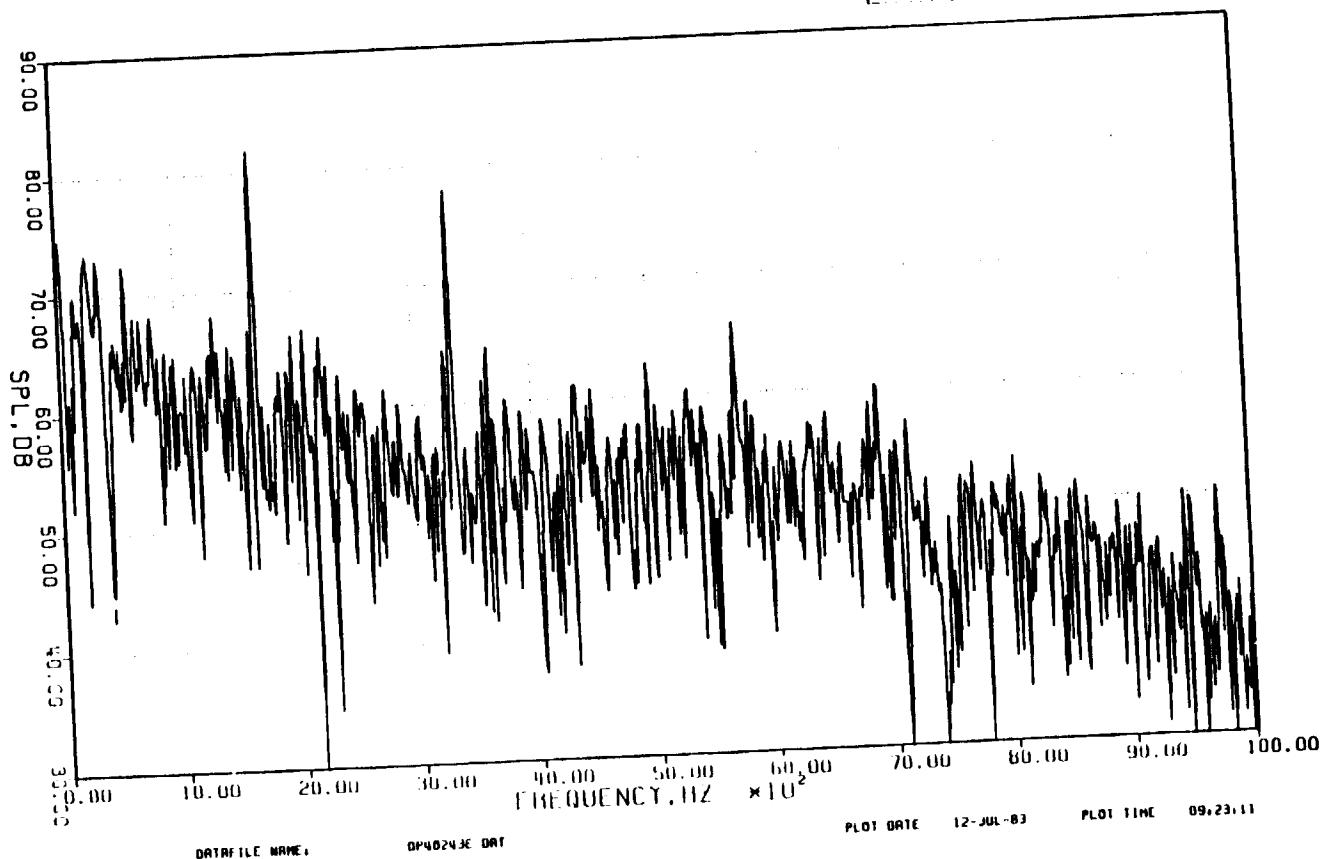
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Appendix 9.3.10

ENHANCED SPECTRUM

100 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM, COR +FAN = 3113

RUN NO.	=13
POINT NO.	=243
DEPTH	=1660
NO. OF BLINDS	=32
TEMP DRY (DEG.F)	=65.0
TEMP WET (DEG.F)	=54.5
BINN PRESS (PSI)	=15.50
BINN SIZE (INCH)	=24.68
SIMP. PERIOD (HZ)	=25.600
REL. LINEAR INCL.	=10.000
REL. FLOOR LINEAR	=8
AVERAGE	=100
MINIMUM (HZ)	=3
MAXIMUM (HZ)	=1
SIMPL. EST. SLOP	=-0.0015
SIMPL. SLOP	=0.01-1.0
SIMPL. CNT 18 RMS	=0.95
SIMPL. CNT 18 MAX	=1.4
SIMPL. DIST. (FT)	=150.0



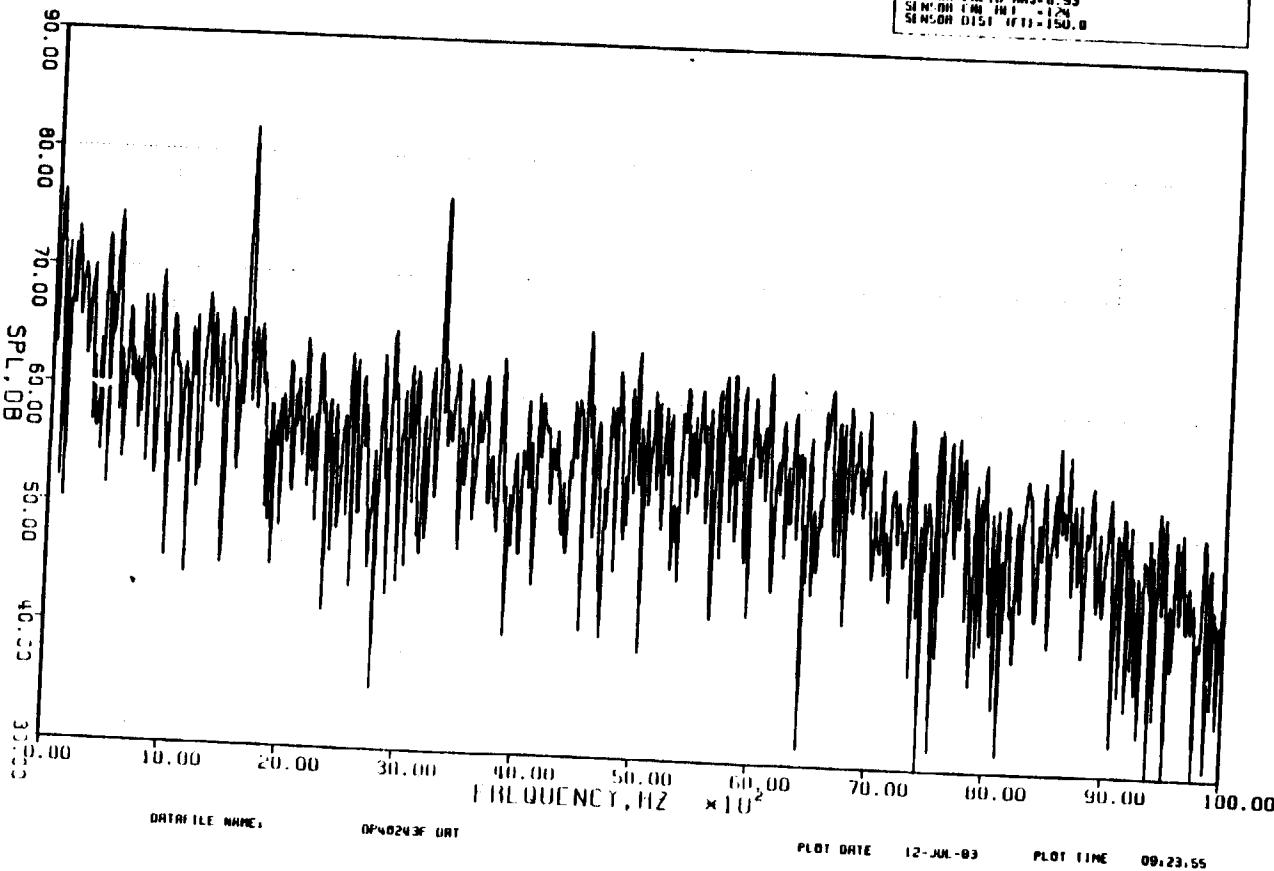
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## Appendix 9.3.11

## ENHANCED SPECTRUM

110 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM, COR = FAN = 3113

RUN NO.	-13
POINT NO.	-263
BPF	-50.00
NO. OF BLADES	-32
TEMP DAT (DEG.F)	-65.0
TEMP SHM (DEG.F)	-54.5
BLADE SPAN (INCH)	-29.50
BLADE SPAN (MM)	-750.00
SIMP. RATIO (HZ)	-1.95400
R/H (LITR/SEC)	-0.00000
MIN DNU TIME (SEC)	-0
AVG RING 5	-100
MIN RING (TH. HZ)	-13
MAX RING (TH. HZ)	-100
SENSOR P1 (TH. HZ)	-0.0016
SENSOR C1 (TH. HZ)	-0.93
SENSOR C1 (TH. RMS)	-1.24
SENSOR DIST (FT)	-150.0

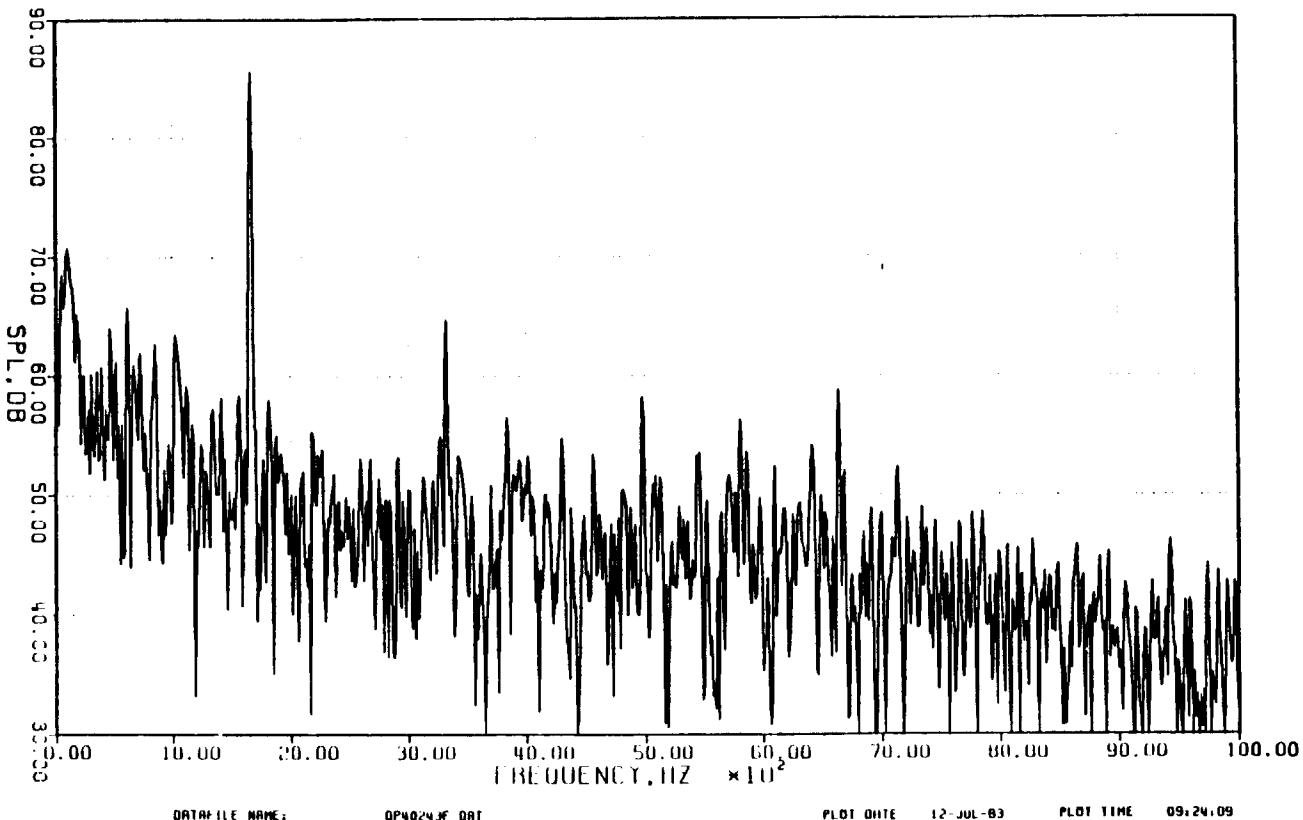


### Appendix 9.3.12

#### ENHANCED SPECTRUM

120 DEG C/P  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D , DATE: 8-JUN-83  
TAPE: E315 , 30 IPS  
FAN = 3113 RPM, COR = FAN = 3113

RUN NO.	=13
POINT NO.	=243
BPF	=1660
NO. OF BLADES	=32
TEMP OUT (DEG.F)	=65.0
TEMP INLET (DEG.F)	=78.50
BINNED FREQS (HZ)	=0.048
BLADE SIZE (INCH)	=25.500
SHEAR RATE (INCH/SEC)	=10.000
R/H (LIQUID) (KNOT)	=0.000
RECORD TIME (SEC)	=8
AVL HOURS	=100
DATA POINTS (X100)	=13
MINIMUM LEVEL (DB)	=4
SEN#00 PS1/VOLT	=0.0016
SEN#00 CHIN (DB)	=10
SEN#00 CHIN RMS	=0.92
SEN#00 CHI REL	=1.24
SEN#00 D151 (DB)	=150.0



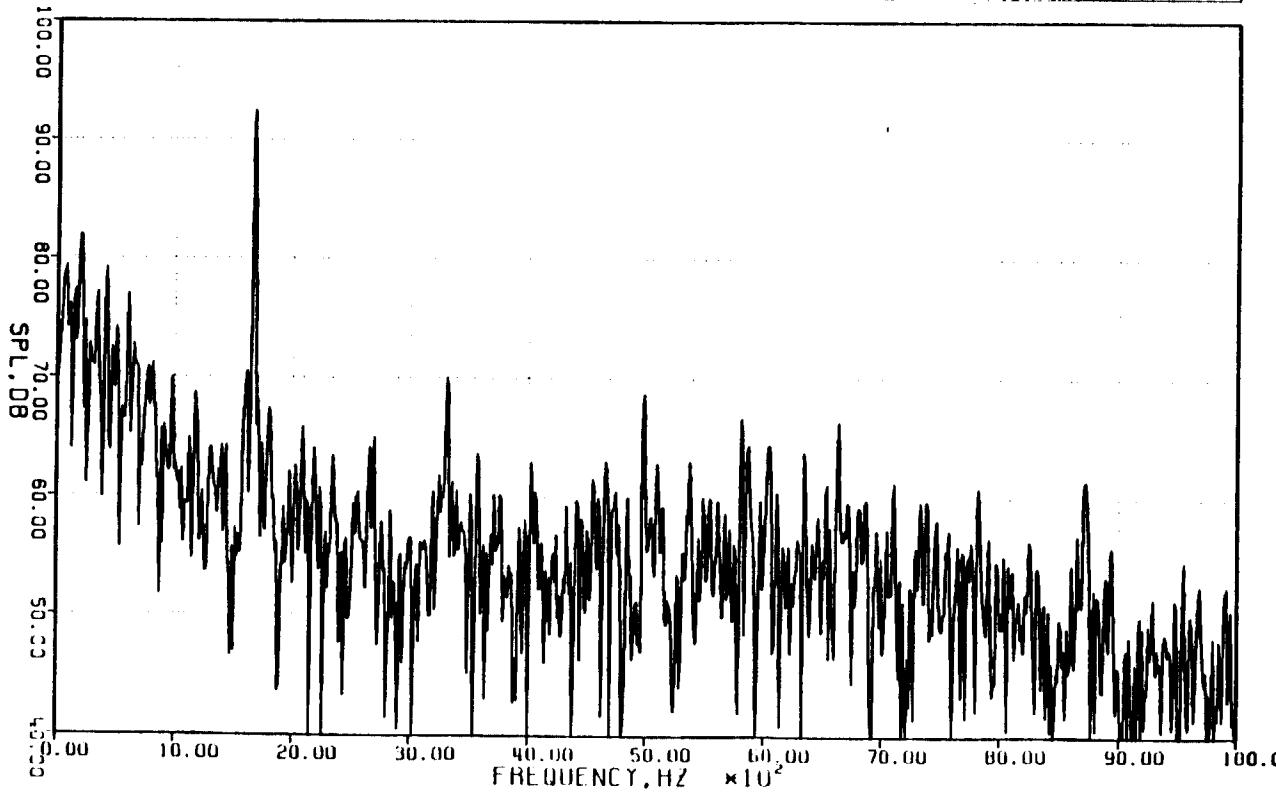
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## Appendix 9.3.13

## ENHANCED SPECTRUM

130 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY THREADED  
 SITE 4D, DATE: 8 JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM, COR -FAN = 3113

RUN NO.	-13
POINT NO.	-263
DPF	-1560
NO. OF BLADES	-32
TEMP DAY (DEG.F)	-66.0
TEMP NIGHT (DEG.F)	-56.0
WIND SPEED (MPH)	-20.0
BLADE RPM	-2048
SUMP WATER (MHZ)	-25.500
R/H (1111111111111111)	-10.000
INTERVAL TIME (SEC.)	-1.0
OVERSAMPLES	-100
NUMBER OF POINTS	-13
NUMBER OF HARMONICS	-1
SENSOR PSV/VOLT	-0.0051
SENSOR CRIM (DB)	-0
SENSOR CRIM RMS	-0.91
SENSOR CRIM REL	-124
SENSOR DISI (FT)	-150.0



DATAFILE NAME:

OP40243G.DAT

PLOT DATE 12-JUL-83

PLOT TIME 09:24:53

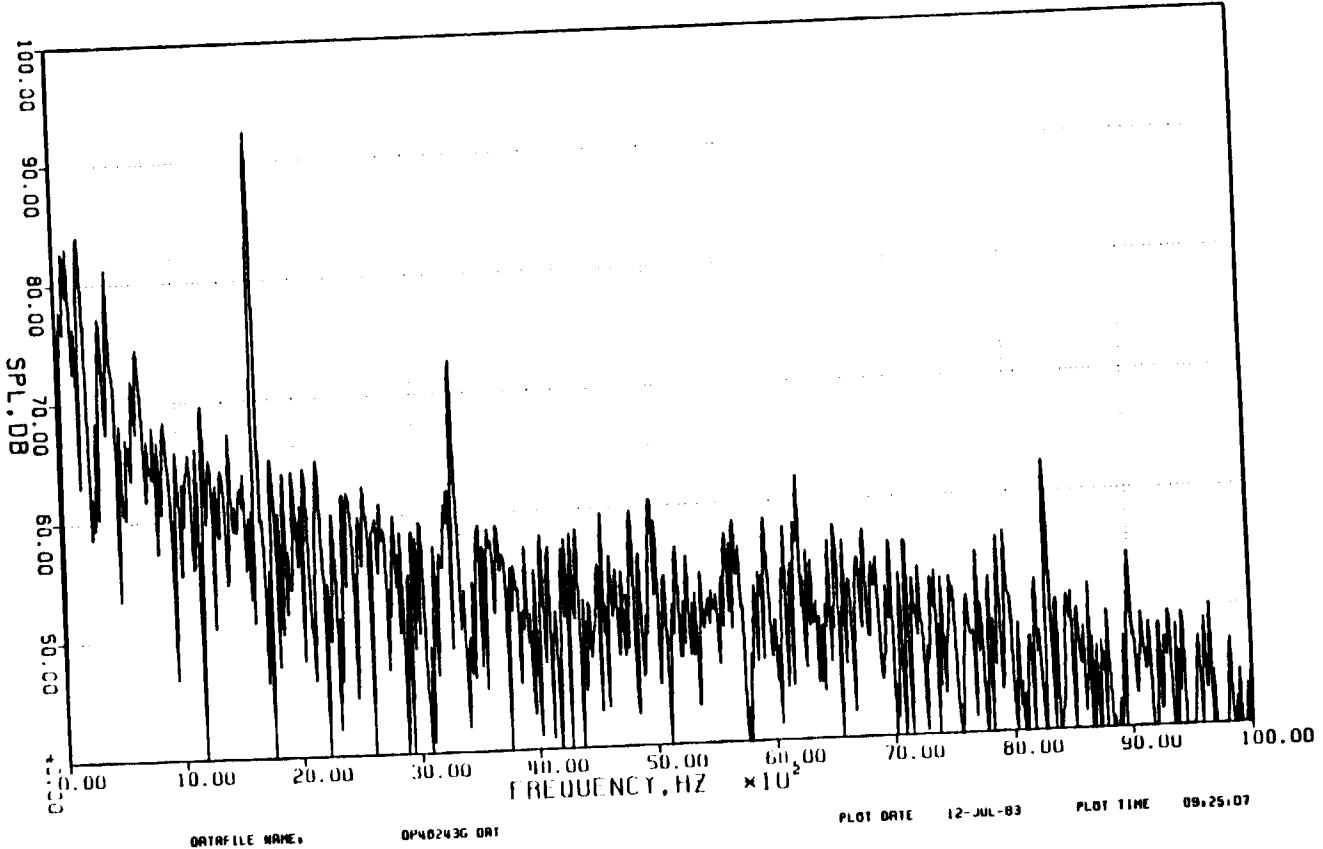
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Appendix 9.3.14

ENHANCED SPECTRUM

140 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM. COR -FAN = 3113

RUN NO.	= 13
POINT NO.	= 243
BPF	= 1560
NO. OF BLADES	= 32
TEMP DRY (DEG.F)	= 66.0
TEMP WET (DEG.F)	= 54.5
BLADE FINNESS 1" (IN)	= 29.50
BLADE SIZE (INCH)	= 204.0
SIMP ARATE (IN/HZ)	= 25.600
BLADE TIME (IN/HZ)	= 10.000
INTERVAL TIME (SEC)	= 8
AVERAGES	= 100
MINIMUM (L-HMM)	= 13
MINIMUM (L-HMM) T	= 0.0048
SENSOR DIST (IN)	= 0
SENSOR DIST (IN) RMS	= 0.94
SENSOR L (IN) HAT	= 124
SENSOR DIST (FT)	= 150.0

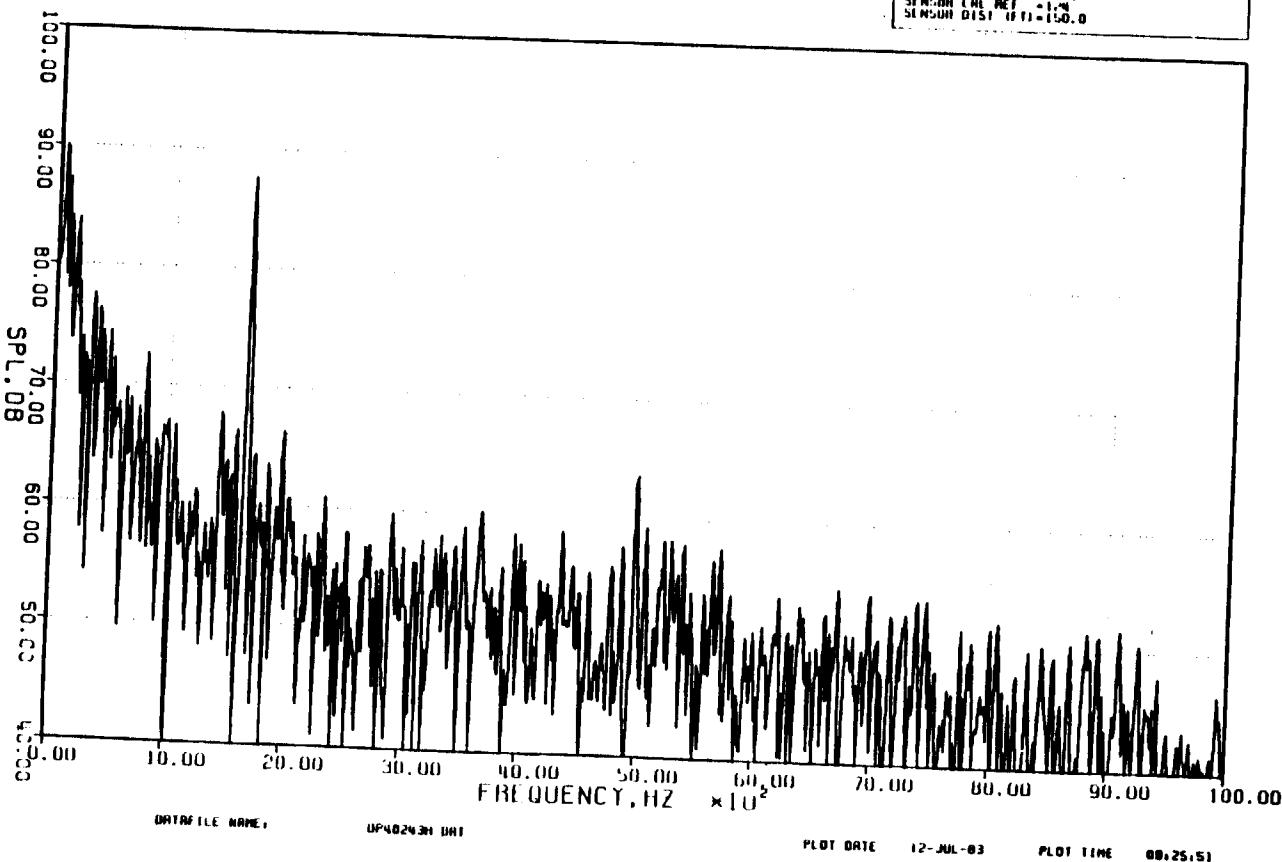


## Appendix 9.3.15

## ENHANCED SPECTRUM

150 DEG G/P  
 E CUBED PEEBLES TEST.  
 CONFIG =1 FULLY TREATED  
 SITE NO . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM. COR =FAN = 3113

RUN NO.	=13
POINT NO.	=243
BUFF	=1668
NO. OF BLADES	=32
TEMP DAY (DEG.F)	=54.5
TEMP NIGHT (DEG.F)	=54.5
MINOR PRESS (PSI)	=2048
BLADE SIZE	=25.00
SUPER HOLE (INCH)	=.25.000
BLADE FLANGE (INCH)	=10.000
INT. RUN TIME (SEC)	=1.0
BLADES	=100
DOWNHOLE (HZ)	=13
MINOR HOLE (INCH)	=.13
SENSOR PSIT/VOLT	=0.0051
SENSOR CHIN (DB)	=0
SENSOR CHIN RMS (DB)	=0.91
SENSOR LINE RET	=1.4
SENSOR DIST (FT)	=150.0



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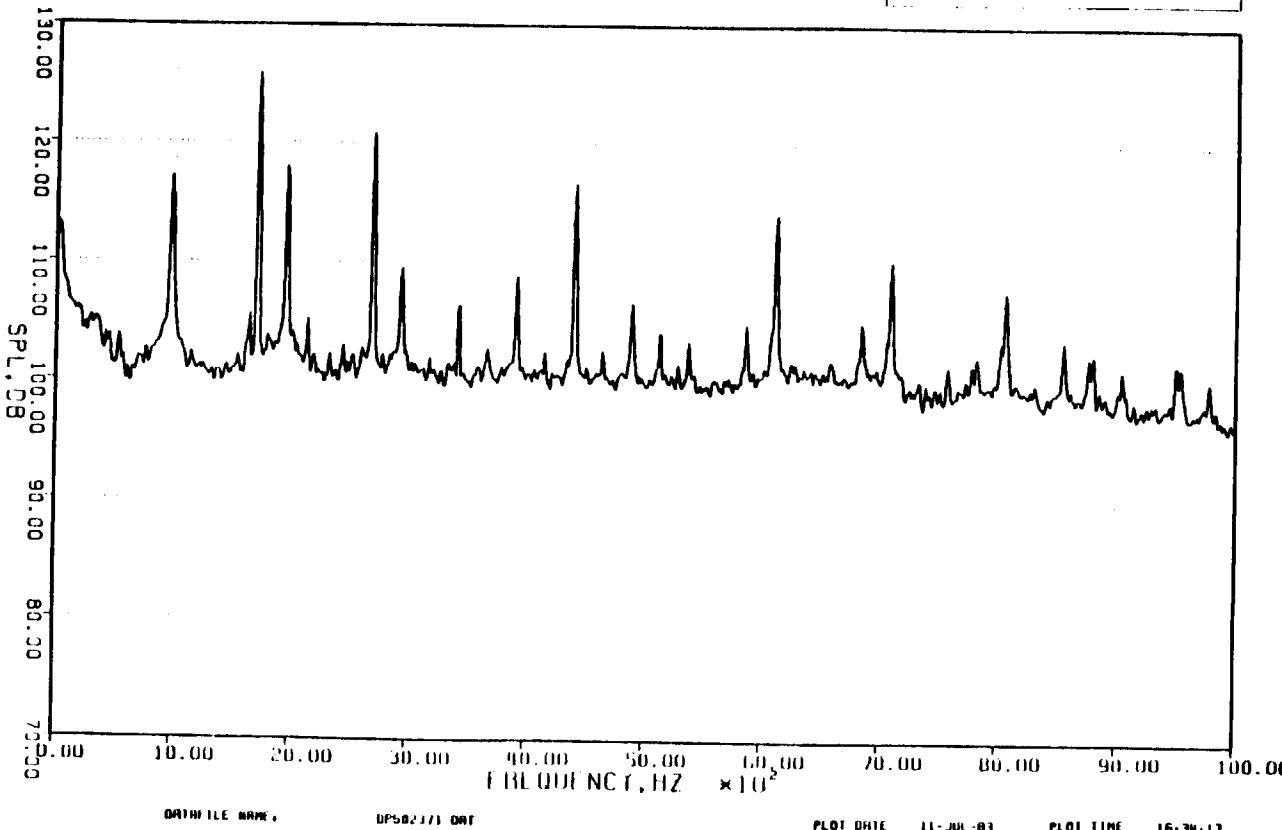
9.4

AVERAGED SPECTRUM

Appendix 9.4.1  
AVERAGED SPECTRUM

KULITE PX10LC  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 1031 RPM, CORE = 10910 RPM

RUN NO.	-7
POINT NO.	-237
BPF	-877
NO. OF BLANKS	-32
TEMP DHT (HC.F)	-65.0
TEMP SHT (HC.F)	-54.5
DATA PFM 55 (HC.F)	-29.50
BLK TIME (SEC)	-0.000
AMP. MUL. (RMS)	-1.00
A/D (1000) (RMS)	-0.000
IN CH001 TIME (SEC)	-0
AVG. ROLL	-100
NUMBER DTH (RMS)	-13
NUMBER DSH (RMS)	-1
SEN-SH DTH (RMS)	-0.0316
SEN-SH DSH (RMS)	-0.01
SEN-SH CH10 (RMS)	-1.00
SEN-SH CH10 (REL)	-121
SEN-SH DIST (RMS)	-150.0

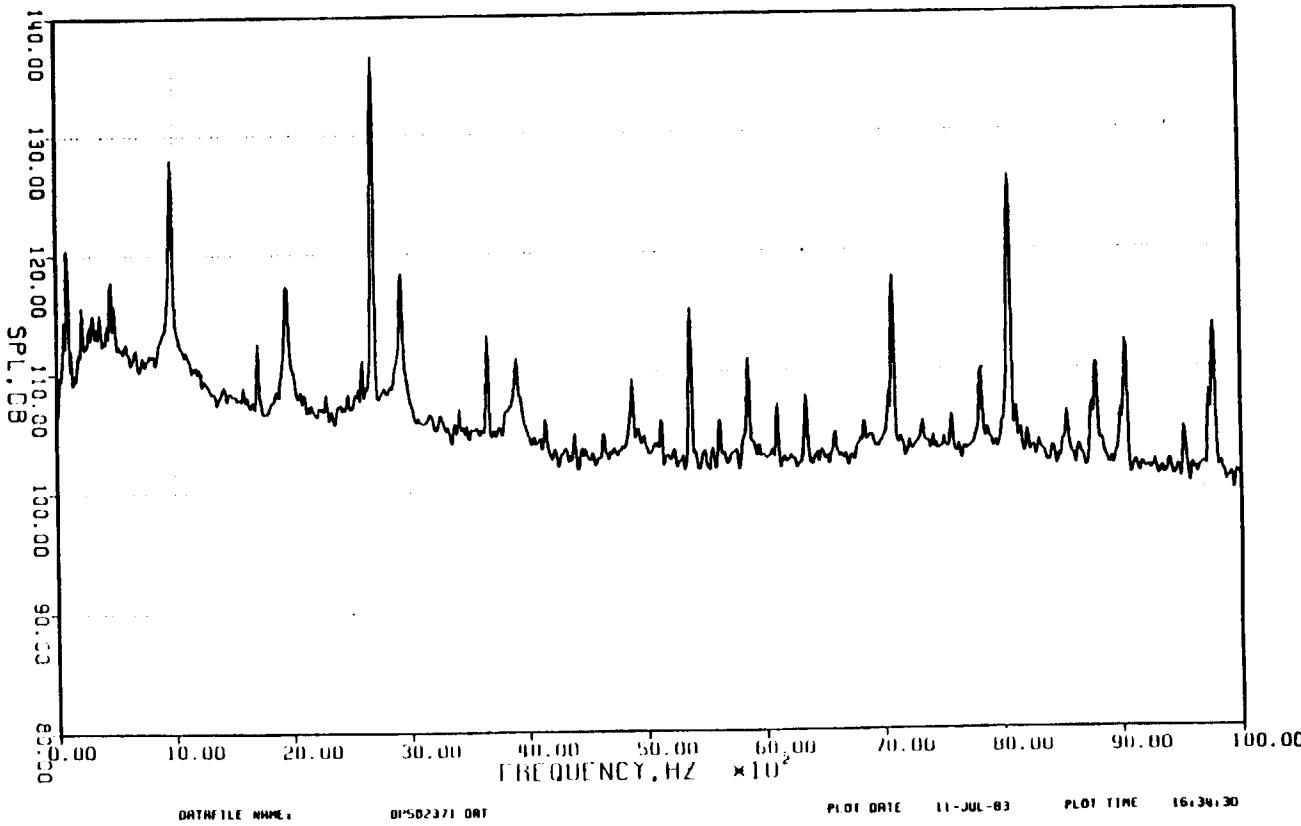


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Appendix 9.4.2  
AVERAGED SPECTRUM

KULITE PX12LC  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 40 . DATE: 8-JUN-83  
TAPE: E315 . 30 IPS  
FAN = 1831 RPM, CORE = 10910 RPM

RUN NO.	=7
POINT NO.	=237
BPF	=577
NO. OF BLADES	=32
TYPE WELD (M.G.F.)	=55.0
TYPE WELD (M.G.F.)	=55.5
DIA/D PISS (%)	=29.50
BLADE SIZE	=2MM
SIMP. RATE (HZ)	=25.600
N/H FILTER (HZ)	=10.000
IN/OUT TIME (SEC)	=0.000
WINDING	=100
MINIMUM (HZ)	=10
MINIMUM (1-HANN)	=10
SENSE01 PS1/VOLT	=0.1000
SENSE01 GAIN (DB)	=20
SENSE01 CR (M HRS)	=1.00
SENSE01 CR (H)	=1.0
SENSE01 DIST (FT)	=150.0



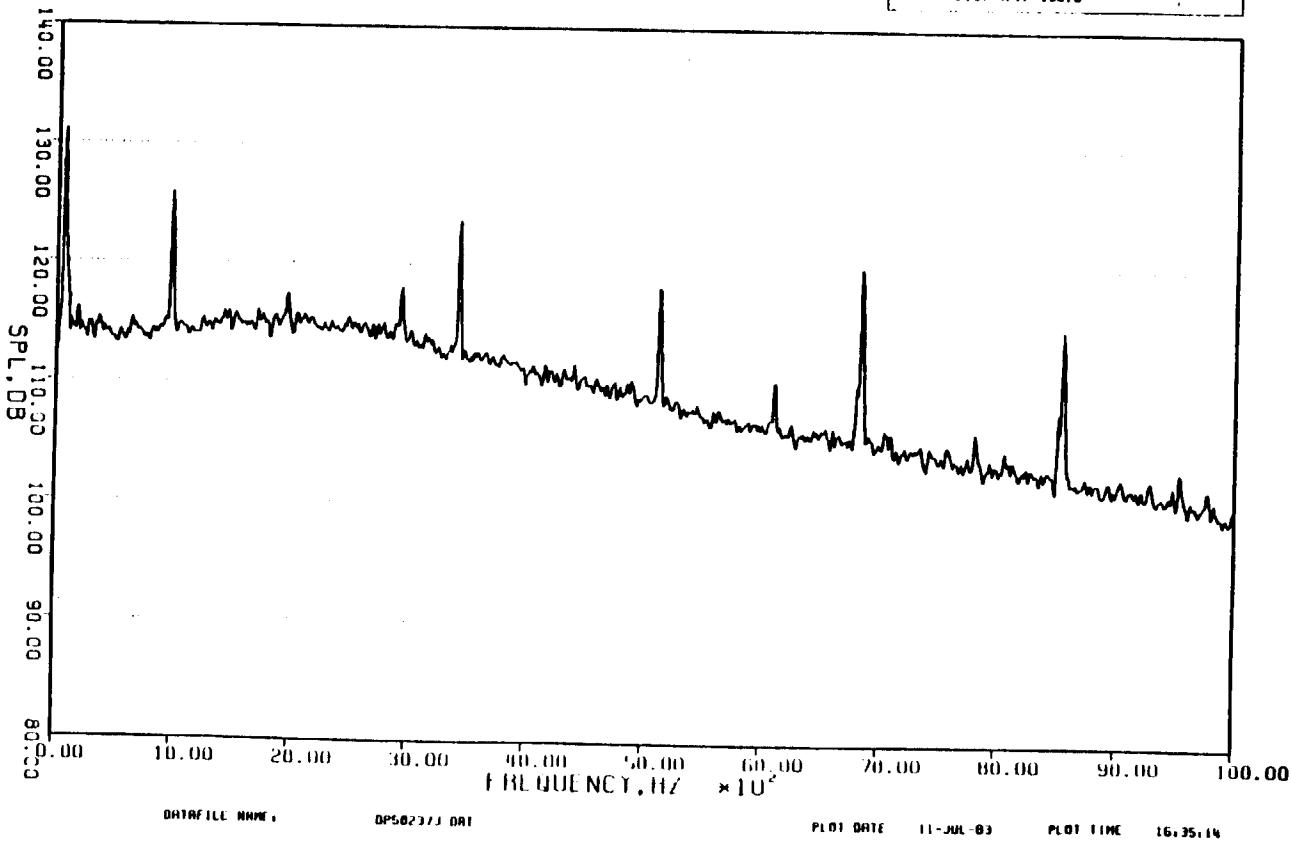
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## Appendix 9.4.3

## AVERAGED SPECTRUM

KULITE PX12LE  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 1831 RPM. CORE = 10910 RPM

RUN NO.	=7
POINT NO.	=237
BPF	=977
NO. OF BLADES	=32
TEMP DRY (DEG.F)	=65.0
TEMP WET (DEG.F)	=58.5
AMBI. PRESS (PSIG)	=14.50
BLADE SPAN	=2040
SPINDL. RPM	=25,000
DATA FILE (NAME)	=10.000
INTERVAL TIME (SEC)	=0
INTERV. COUNT	=100
INTERV. AVG. (DB)	=13
MINIMUM (DB)	=13
MAXIMUM (DB)	=10000
SUM (DB)	=151700.0
SPIN (DB)	=20
SPIN (DB) RMS	=1.00
SPIN (DB) STD	=1.0
SPIN (DB) D151	=150.0



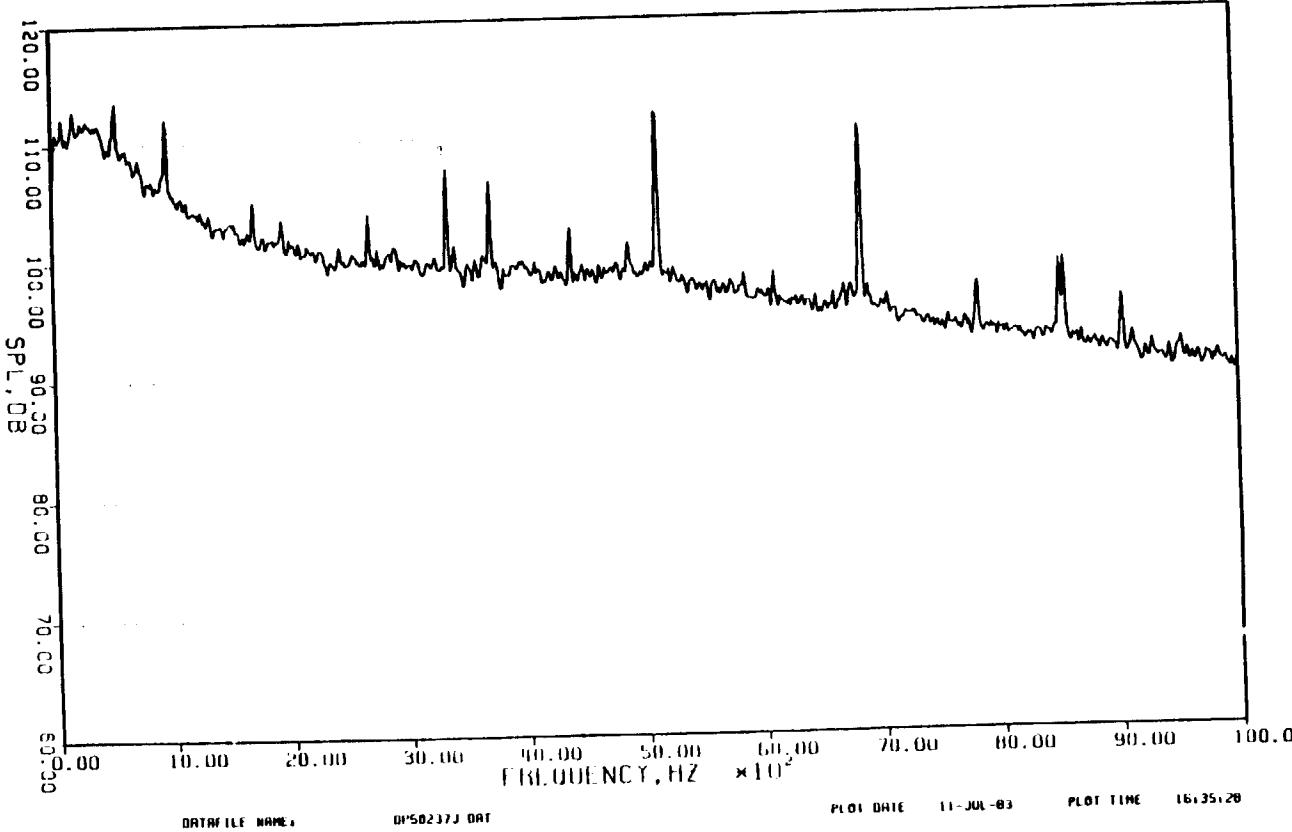
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### Appendix 9.4.4

#### AVERAGED SPECTRUM

KULITE PX14LF  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 1831 RPM, CORE = 10910 RPM

RUN NO.	-7
POINT NO.	-637
BPF	-677
NOM. OF BLOBS	-32
TEMP. DRY (DEG.F)	-65.0
TEMP. WET (DEG.F)	-54.5
BINNO PER SS (1/HZ)	-20.50
BUCKLE SIZE	-21MB
SUMP RATE (INCHI)	-0.600
WATER LINE (INCHI)	-0.000
BUCKLE LINE (SEC)	-0
BUCKLE HGT	-100
BUCKLE WIDTH (INCH)	-13
MINIMUM LI+H2O(H)	-1
SENSOR PSV/VOLT	-0.0116
SENSOR GAIN (V/MS)	-30
SENSOR BIAS (VMS)	-1.00
SENSOR CAL. MEF	-171
SENSOR DIST (FT)	-150.0



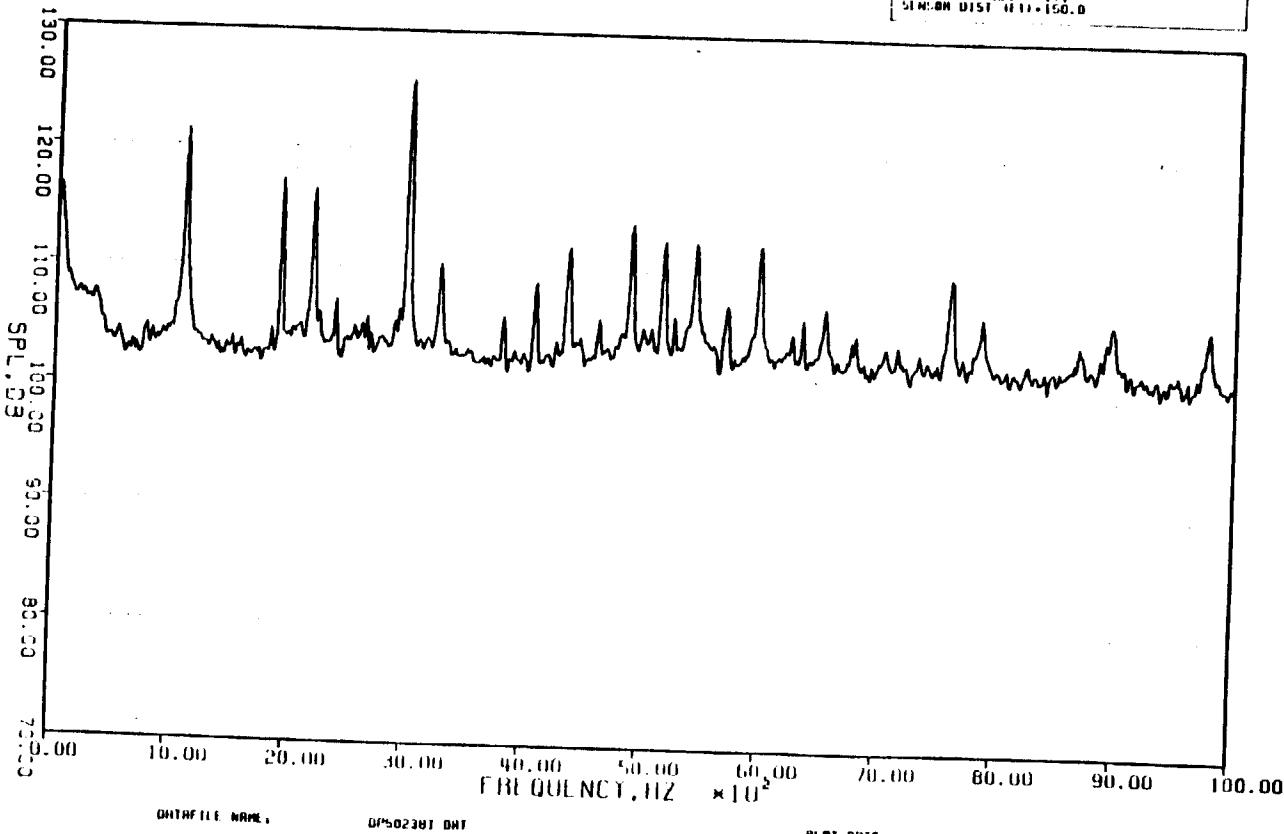
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## Appendix 9.4.5

## AVERAGED SPECTRUM

KULITE PX10LC  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TYPE: E315 , 30 IPS  
 FAN = 2037 RPM, CORE = 11250 RPM

RUN NO.	-8
POINT NO.	-230
SPF	-1085
NO. OF BLADES	-32
TEMP DAY (DEG.F)	-65.0
TEMP NIGHT (DEG.F)	-59.5
WIND DIRECTION (deg)	-28.50
BLADE SPAN (in)	-14.00
SHOE RATE (in/sec)	-25.00
BLADE REV/TIME (sec)	-10.000
BLADE RPM	-100
WIND DIRECTION (deg)	-13
WIND SPEED (M/S)	-1
GEN. NO. 1512001 - 0.1000	
GEN. NO. 1512002 - 0.1000	
GEN. NO. 1512003 - 1.00	
GEN. NO. 1512004 - 1.00	
GEN. NO. 1512005 - 1.00	
GEN. NO. 1512006 - 1.00	
GEN. NO. 1512007 - 1.00	
GEN. NO. 1512008 - 1.00	
GEN. NO. 1512009 - 1.00	
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GEN. NO. 1512100 - 1.00	



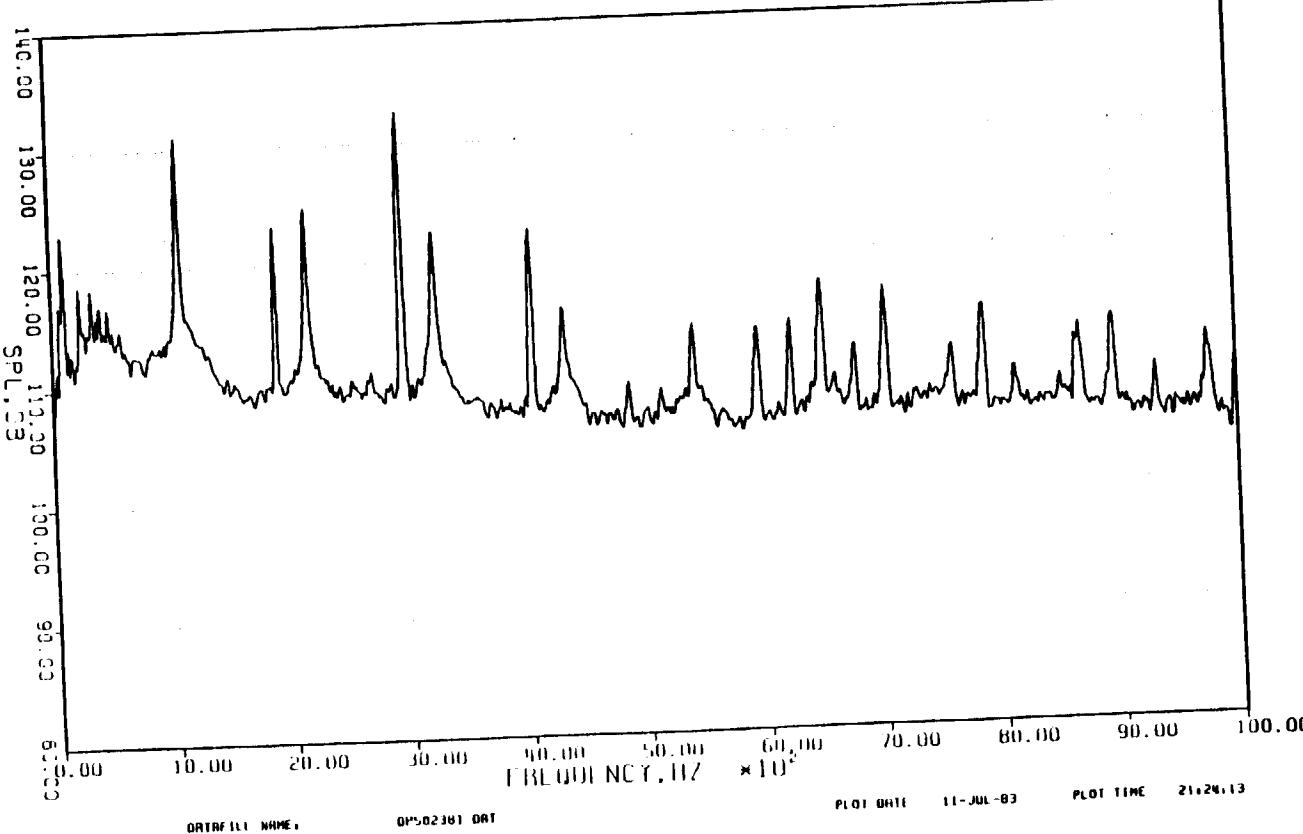
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Appendix 9.4.6

AVERAGED SPECTRUM

KULITE PX12LC  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 THPE: E315 . 30 IPS  
 FAN = 2037 RPM, CORE = 11250 RPM

RUN NO.	-8
POINT NO.	-238
BPF	-1000
NO. OF BLADES	-1
TEMP ORIG (DEG.F)	-65.0
TEMP WT (DEG.F)	-54.5
BINAR PRESS (PSI)	-29.50
BINAR SIZE	-21448
SPINDL RATE (RPM)	-11250
N/D FILTER (RPM)	-10.000
REFLECT TIME (SEC)	-0
REFLECTS	-100
REFLECTOR (HZ)	-13
MINIMUM (HZ)	-1
SENSE0011:RRNNN	-1
SENSE0012:VOLT	-0.1000
SENSE0013:IN (DB)	-20
SENSE0014:IN(PS)	-1.00
SENSE0015:RAT	-171
SENSE0016:RAT	-150.0

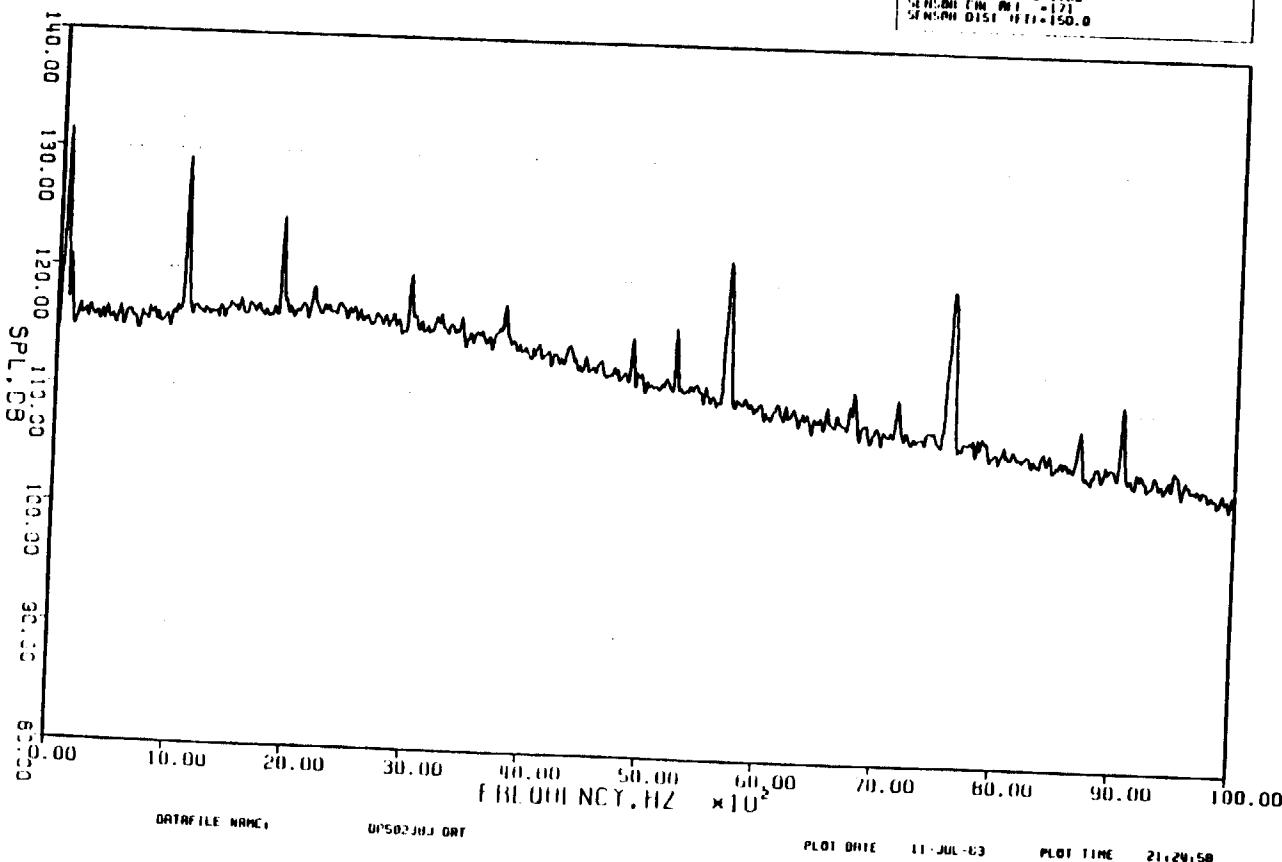


## Appendix 9.4.7

## AVERAGED SPECTRUM

KULITE PX12LE  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 6-JUN-03  
 TAPE: E315 . 30 IPS  
 FHN = 2037 RPM, LOHE = 11250 RPM

RUN NO.	-8
POINT NO.	-220
BPF	-1000
NO. OF BLADES	-32
IMP DRY (DEG.F)	-65.0
IMP WET (DEG.F)	-54.5
WIND SPEED (M/S)	-29.50
BLADE SPAN	-214.00
SIMP RATE (HZ)	-50.000
R-D (10) (HZ)	-50.000
REC TIME (SEC)	-8
AVG RATE	-100
MINIMUM DIST	-13
MAXIMUM DIST	-1
SENSE01 VOLT	-0.1000
SENSE01 LIN (DB)	-7.0
SENSE01 LIN 10 RMS	-1.00
SENSE01 LIN INT	-121
SENSE01 DIST (FT)	-150.0



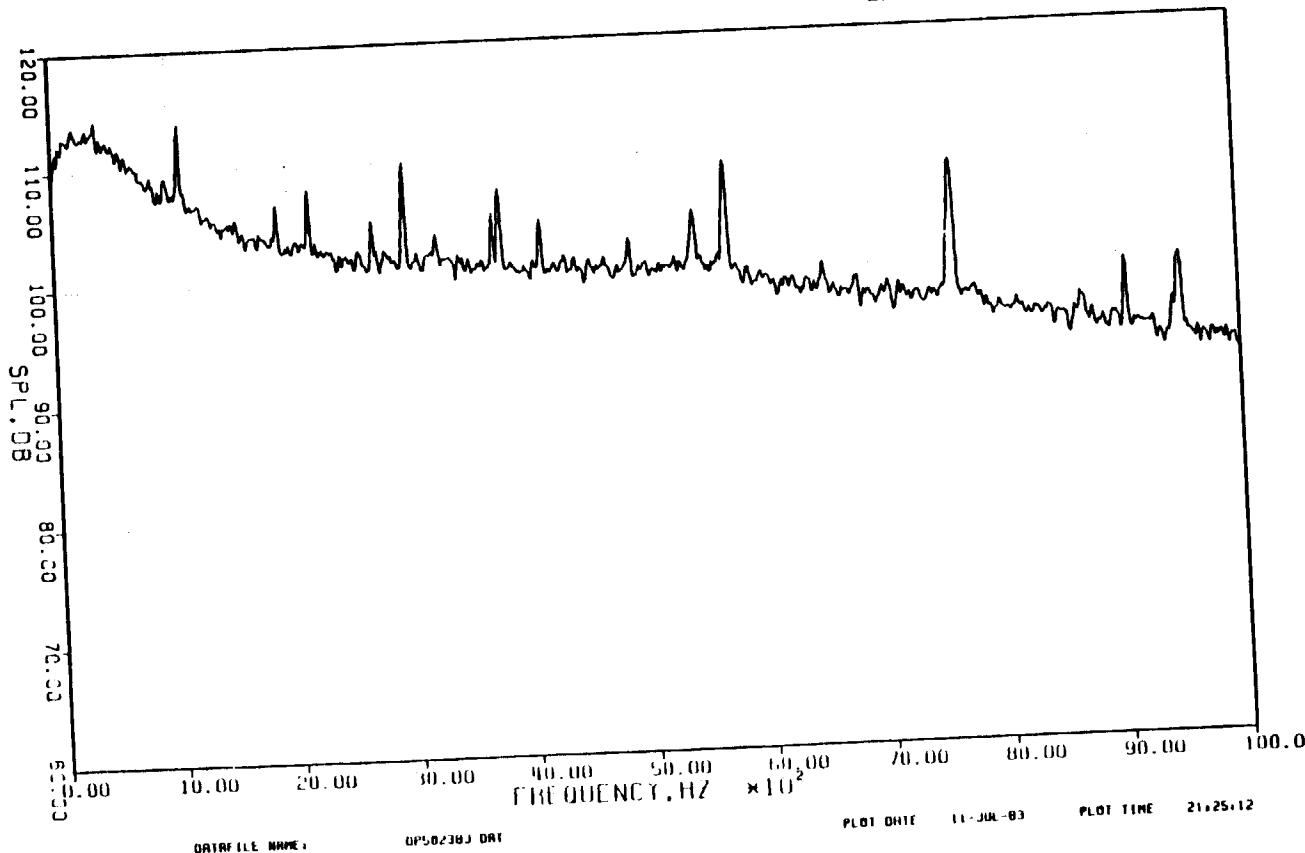
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### Appendix 9.4.8

#### AVERAGED SPECTRUM

KULITE PX14LF  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2037 RPM. COHE = 11250 RPM

ARM NO.	-8
POINT NO.	-236
BPF	-1000
NO. OF BLADES	-25.0
TEMP DRY	-65.0
TEMP WET (DEG.F)	-56.5
MININ PRESS (PSI)	-20.50
BLADE SIZE	-2048
SPINDLE RPM(HZ)	-25.000
REFLECTOR TIME (SEC)	-0.000
REFLECTOR DISTANCE	-100
REFLECTOR	-13
REFLECTOR DIA(HZ)	-1
MINIDOM(L)-IRANI	-1
SENSOR PS1/VOLT	-0.0316
SENSOR CHIN (DBL)-1.00	-1.00
SENSOR CHIN (DBS)-1.00	-1.00
SENSOR CAL RFL	-171
SENSOR DIST (FT)	-150.0

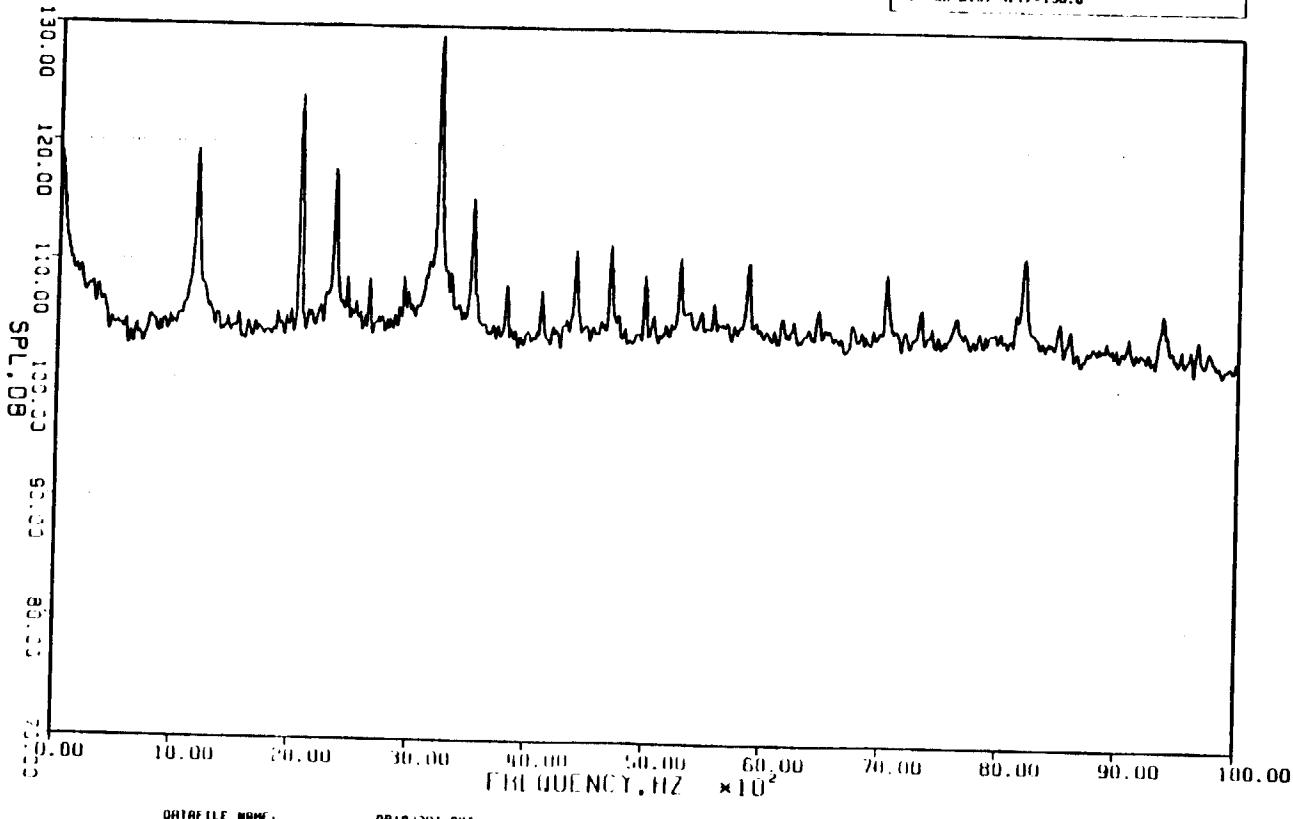


## Appendix 9.4.9

## AVERAGED SPECTRUM

KULITE PX10LC  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	=9
POINT NO.	=239
WPF	=1168
NO. OF BLADES	=32
ITMP. AMT. (DEG.F.)	=61.0
ITMP. PRESS. (PSI)	=14.5
BLADE SPAN (INCH)	=29.50
BLADE SIZE (INCH)	=1.00
SIMM. RATE (INCH)	=1.608
BLADE THICKNESS (INCH)	=0.000
RECORD TIME (SEC)	=0
REC. SPEED (INCH)	=100
REC. DIA. (INCH)	=13
REC. WIDHT (INCH)	=13
REC. AMT. (PSI/SEC)	=0.1000
SEN-OR CRTR. (IPS)	=20
SEN-OR CRTR. RMS	=1.00
SEN-OR CRTR. AVG	=1.71
SEN-OR DIST. (FT)	=150.0



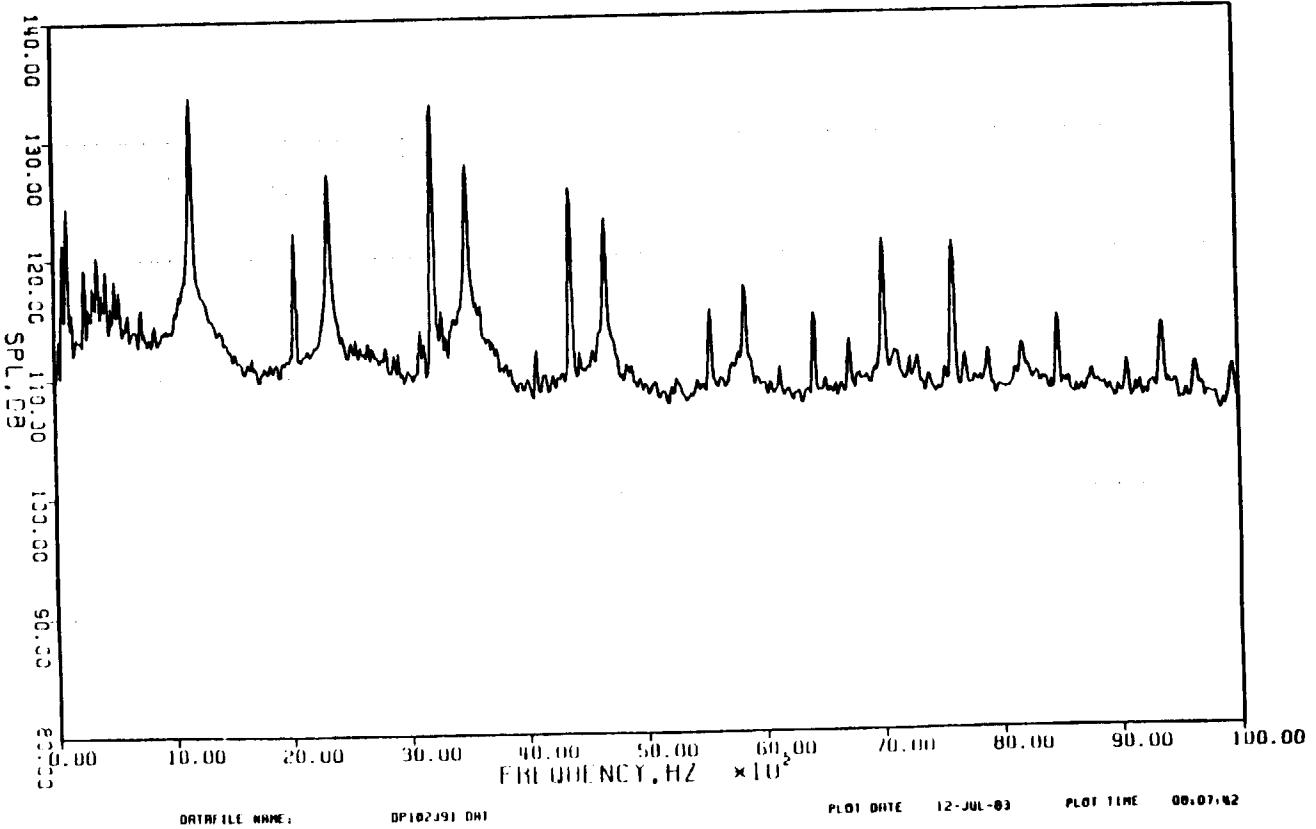
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### Appendix 9.4.10

#### AVERAGED SPECTRUM

KULITE PX12LC  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-03  
 TAPE: E315 , 30 IPS  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	-9
POINT NO.	-239
BPF	-1168
NO. OF BLADES	-26
BLADE SPACING, INCHES	-54.0
BLADE WET WEIGHT, OZ	-29.5
BLADE PM, 55° TILT	-2048
SHAW WHITE KNUZI	-25.000
R/4 (111111111111)	-10.000
RECORD TIME (SEC.)	
RECORD DENSITY	-100
MINIMUM TILT, KNUZI	-13
MINIMUM TILT, HONEY	-1
SENSE OR GAIN/VOI1	-0.1000
SENSE OR GAIN/VOI2	-20
SENSE OR GAIN/VOI3	-100
SENSE OR GAIN/VOI4	-171
SENSE OR GAIN/VOI5	-150.0



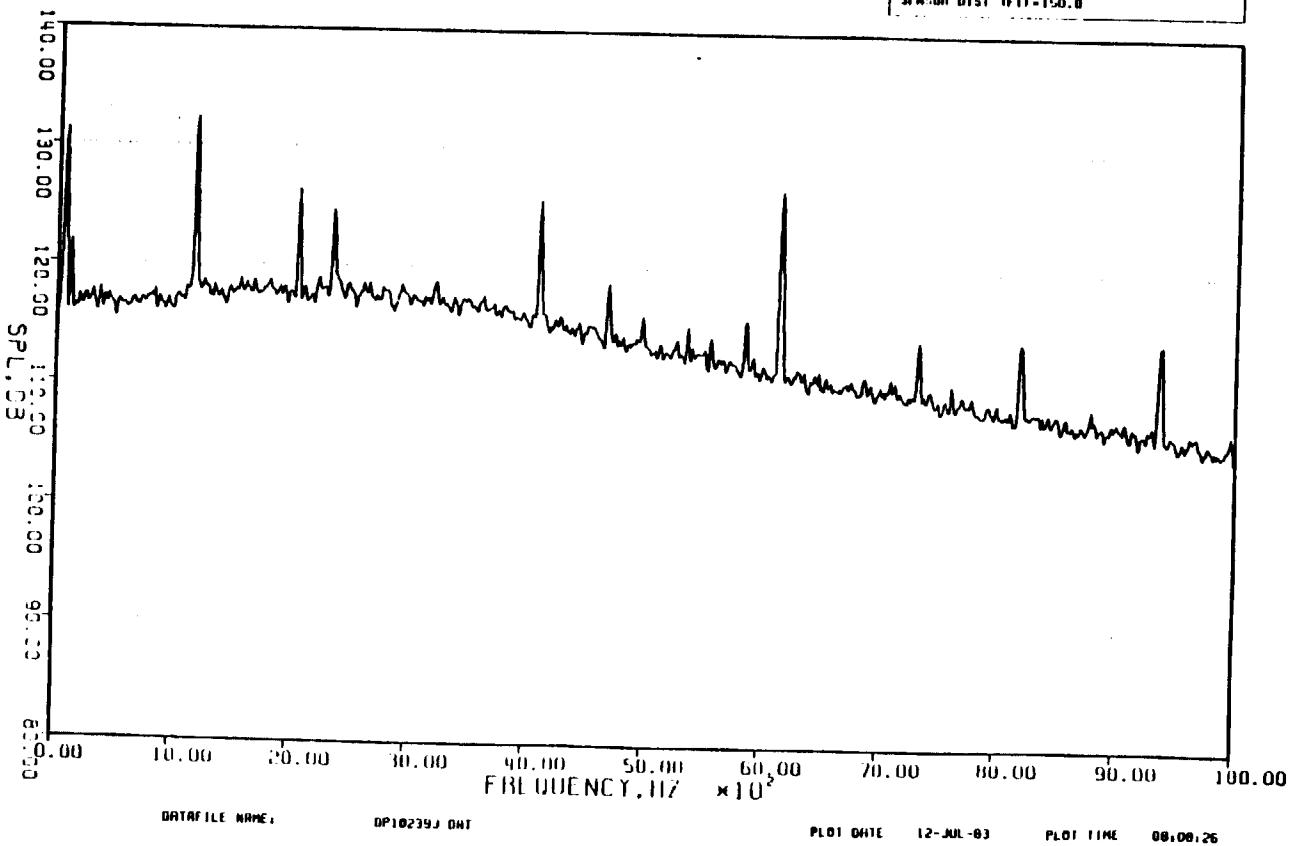
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## Appendix 9.4.11

## AVERAGED SPECTRUM

KULITE PX12LE  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	8
POINT NO.	239
BPF	1160
NO. OF BLADES	32
TEMP. DAT (DEG. F)	65.0
TEMP. WET (DEG. F)	65.5
AMPM PHASE (deg)	-20.50
BLADE SIZE	2044.0
SPEC. RATIO (MHz)	25.600
AVG. RATIO (MHz)	10.000
AVG. RATIO (ECP)	0
REV. RATE	0.00
MINIMUM (dB)	-13
MINIMUM (dB/1000)	-1
SENG-001 CS1/WHT	0.1000
SENG-001 CRIM THIN	20
SENG-001 CRIM RMS	1.00
SENG-001 CRIM R/F	17
SENG-001 D51 (F)	150.0



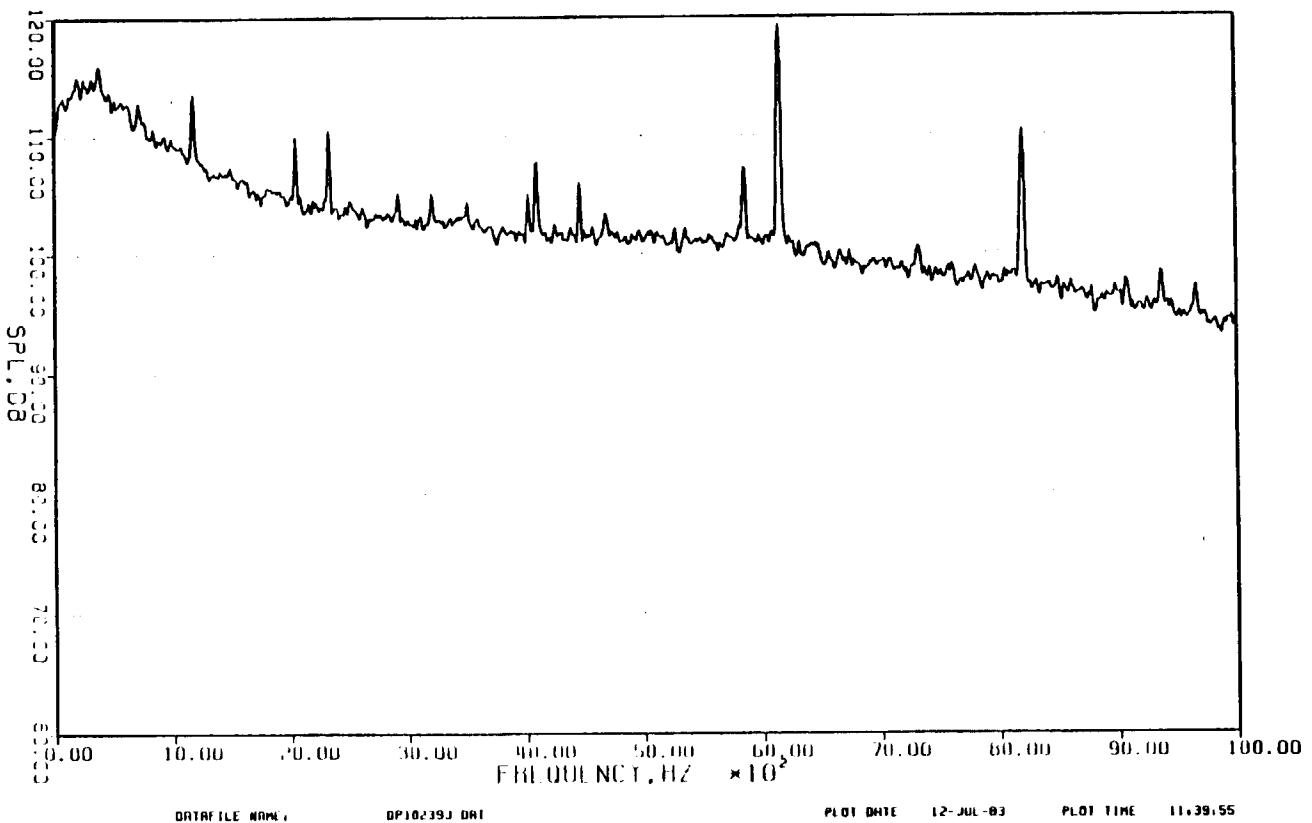
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### Appendix 9.4.12

#### AVERAGED SPECTRUM

KULITE PX14LF  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2190 RPM, CORE = 11480 RPM

RUN NO.	= 9
POINT NO.	= 239
DPF	= 1168
NO. OF BLADES	= 3
TEMP APP (DEG.F)	= 65.0
TEMP WLT (DEG.F)	= 54.5
BEND PIV (IN.)	= 20.50
BEND STIFF	= 2048
SUPER RATIO (KHZ)	= 25.000
A.D. FILTER (KHZ)	= 10.000
NUMBER OF POINTS	= 100
NUMBER OF DATA	= 13
WINDOWING (HANN)	= 1
SENSOR PSV/VOLT	= 0.0316
SENSOR DYN (DBA)	= 30
SENSOR LMT (RMS)	= 1.00
SENSOR CRIT (PERCENT)	= 17
SENSOR DIST (FT)	= 150.0

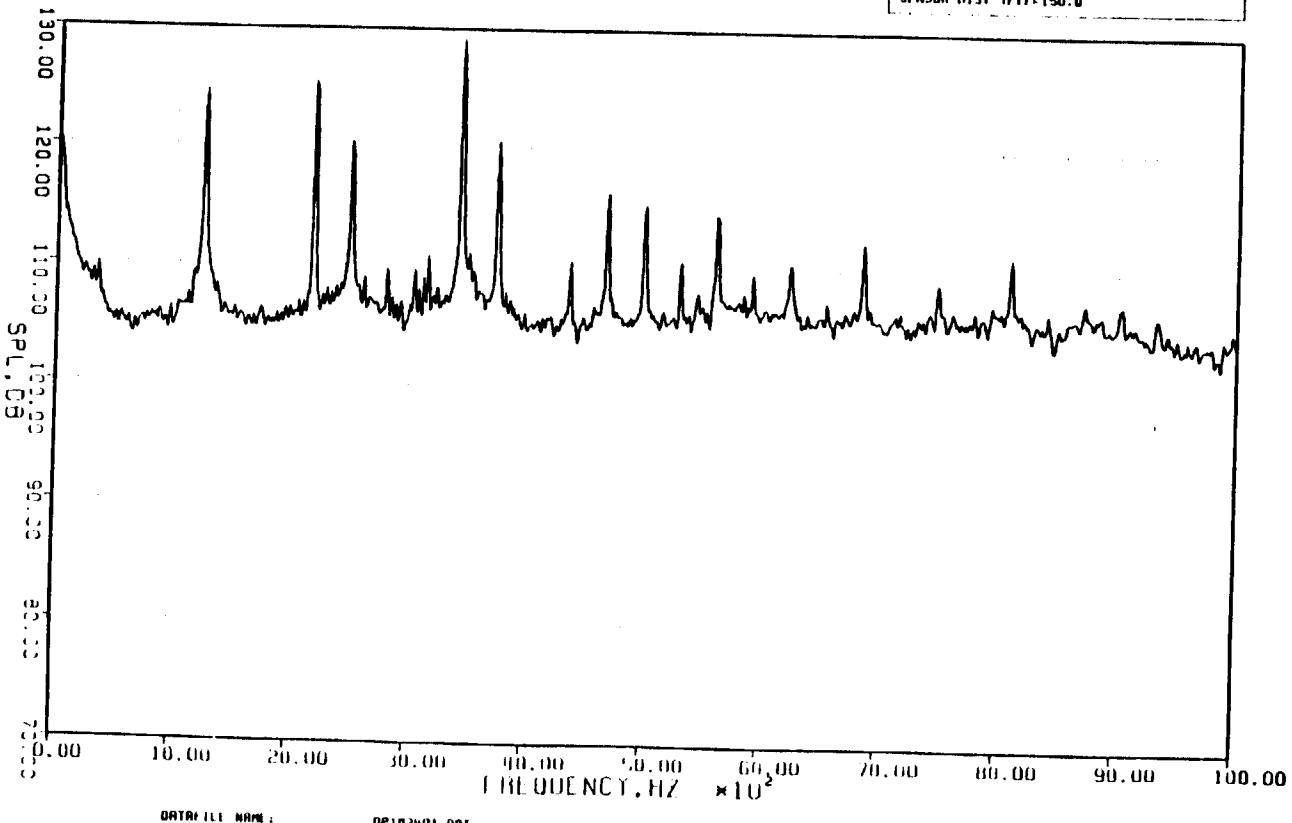


## Appendix 9.4.13

## AVERAGED SPECTRUM

KULITE PX10LC  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TYPE: E315 . 30 IPS  
 FAN = 2335 RPM, CORE = 11650 RPM

RUN NO.	= 10
POINT NO.	= 240
BPF	= 1745
NO. OF BLADES	= 12
TEMP. OUT (DEG.F.)	= 65.0
TEMP. INT (DEG.F.)	= 54.5
BLADE PRESS (LBS)	= 29.50
BLADE SITE (INCH)	= 204.0
SIMON LINE (INCH)	= 25.000
R/H (RELATIVE HUMIDITY)	= 10.000
REC'D TIME (SEC)	= 0.000
HV VOLTS	= 100
MINIMUM TH. (HZ)	= 13
MAXIMUM TH. (HZ)	= 1
SPAN (HZ)	= 1000
SPAN (DB)	= 100
SPAN (DB) RMS	= 1.00
SPAN (DB) REL	= 1.0
SENSOR DIST (FT)	= 150.0



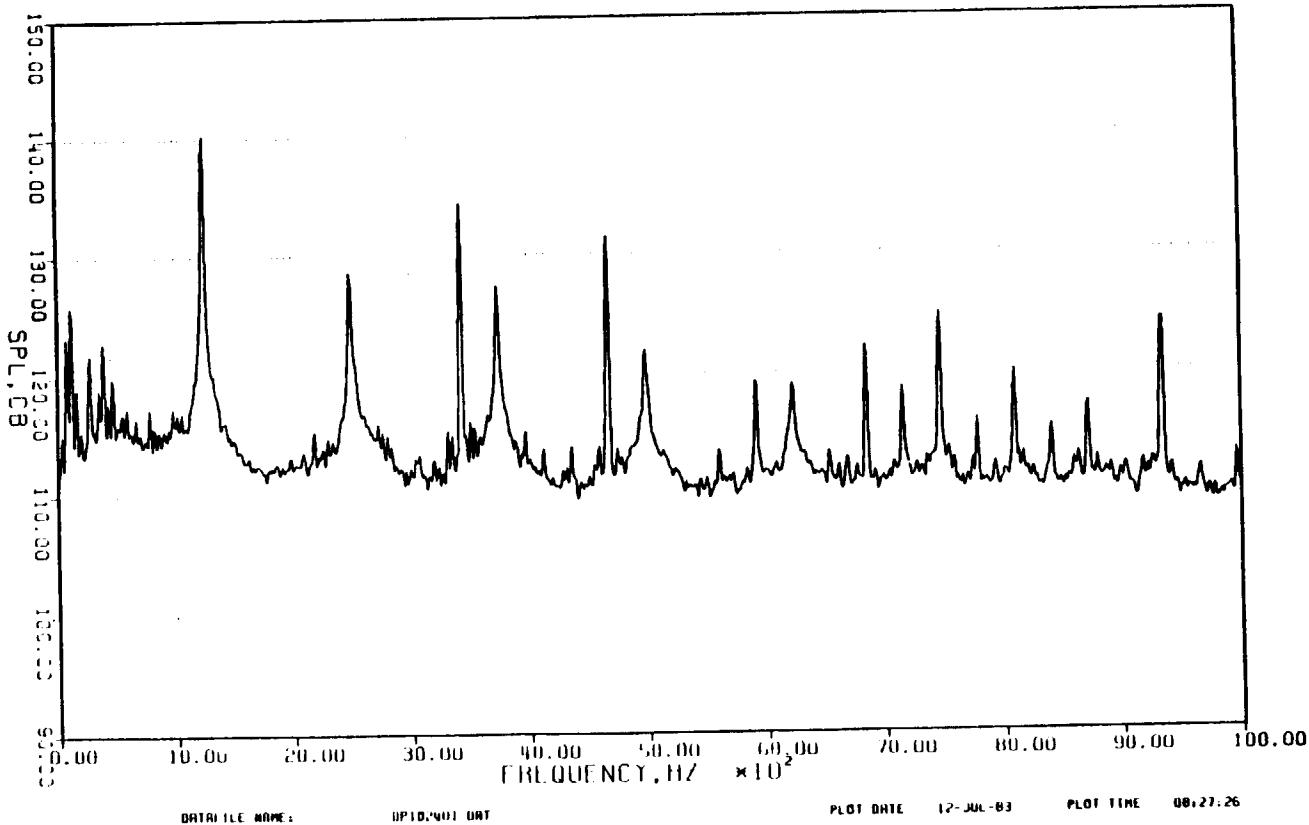
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Appendix 9.4.14

AVERAGED SPECTRUM

KULITE PX12LC  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TRAIATED  
 SITE 40 . DATE: 8-JUN-83  
 TYPE: 1315 , 30 IPS  
 FAN = 2335 RPM. COHE = 11650 RPM

RUN NO.	=10
POW NO.	=240
BPF	=1245
NO. OF BLADES	=32
TEMP DAY (DEG.F)	=65.0
TEMP NLT (DEG.F)	=54.5
HHRM PHM SS 1 <sup>ST</sup> HGT	=10:00:00
HHRM AFTZI	=20:00
SAMP RATE (KHZ)	=25.000
ADC FID (HZ/KHZ)	=10.000
REC'D TIME (SEC)	=0
AVG HNGS	=100
DATA WIDTH (HZ)	=13
MIN HNG	=-100
MAX HNG PS1/PS2	=0.1000
SENSOR GHTM (DB)	=20
SENSOR CH1 TO RMS	=1.00
SENSOR CH1 HGT	=171
SENSOR DIST (MM)	=150.0



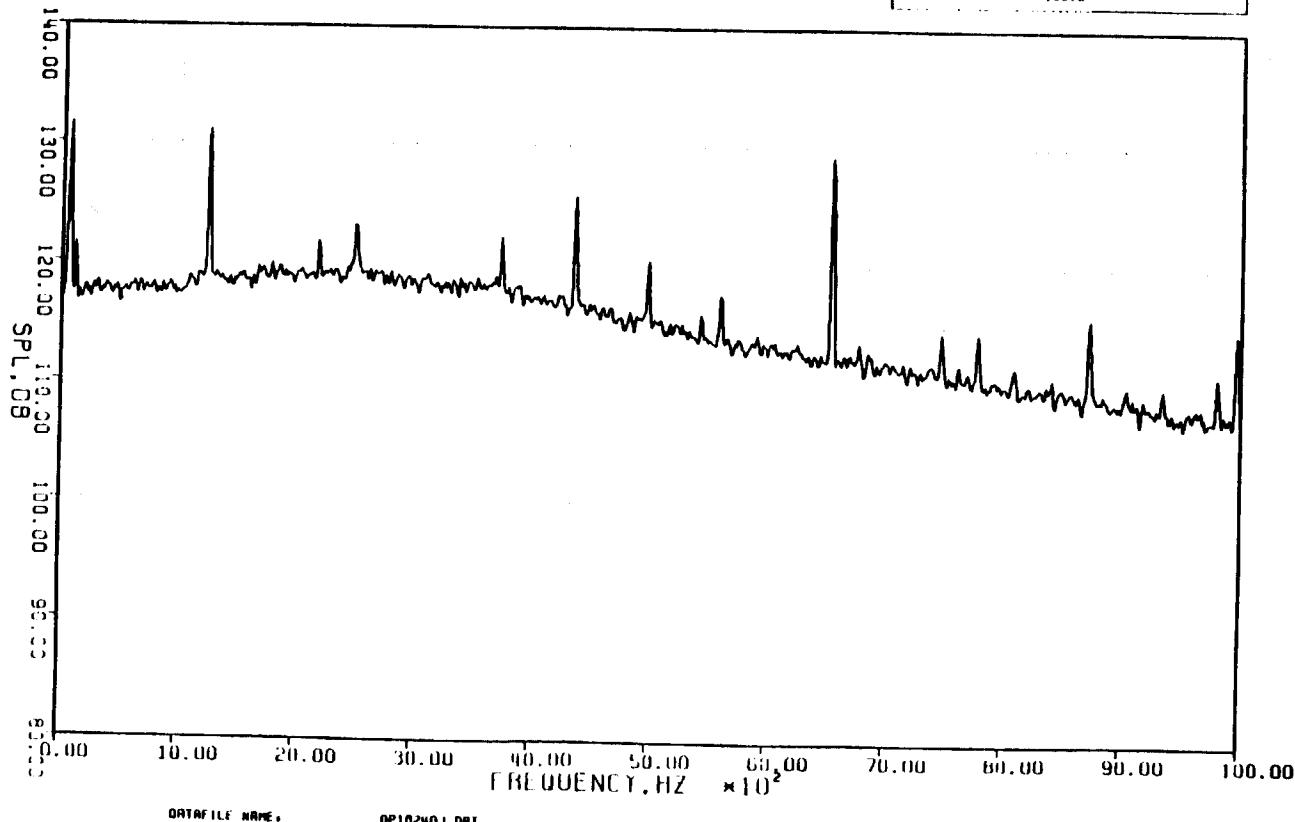
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## Appendix 9.4.15

## AVERAGED SPECTRUM

KULITE PX12LE  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 THPE: E315 . 30 IPS  
 FAN = 2335 RPM. CORE = 11650 RPM

RUN NO.	10
POINT NO.	240
BPF	1246
NO. OF BLADES	32
TEMP DRY (DEG.F)	65.0
TEMP WET (DEG.F)	54.5
BIND PRESSURE (LBS)	50
BLADE SIZE	20MM
SHIM (INCH) (MM)	25.600
A.D. FILTER (MM)	10.000
REC TIME (SEC)	0
REC VOL (VOL)	100
REC BIAS (VOL)	-1
REC GAIN (VOL)	1
REC OFF SET (VOL)	0.1000
REC GAIN (DB)	20
REC LOW RMS	1.00
REC HIGH RMS	1.71
REC Q151 (F1)	150.0



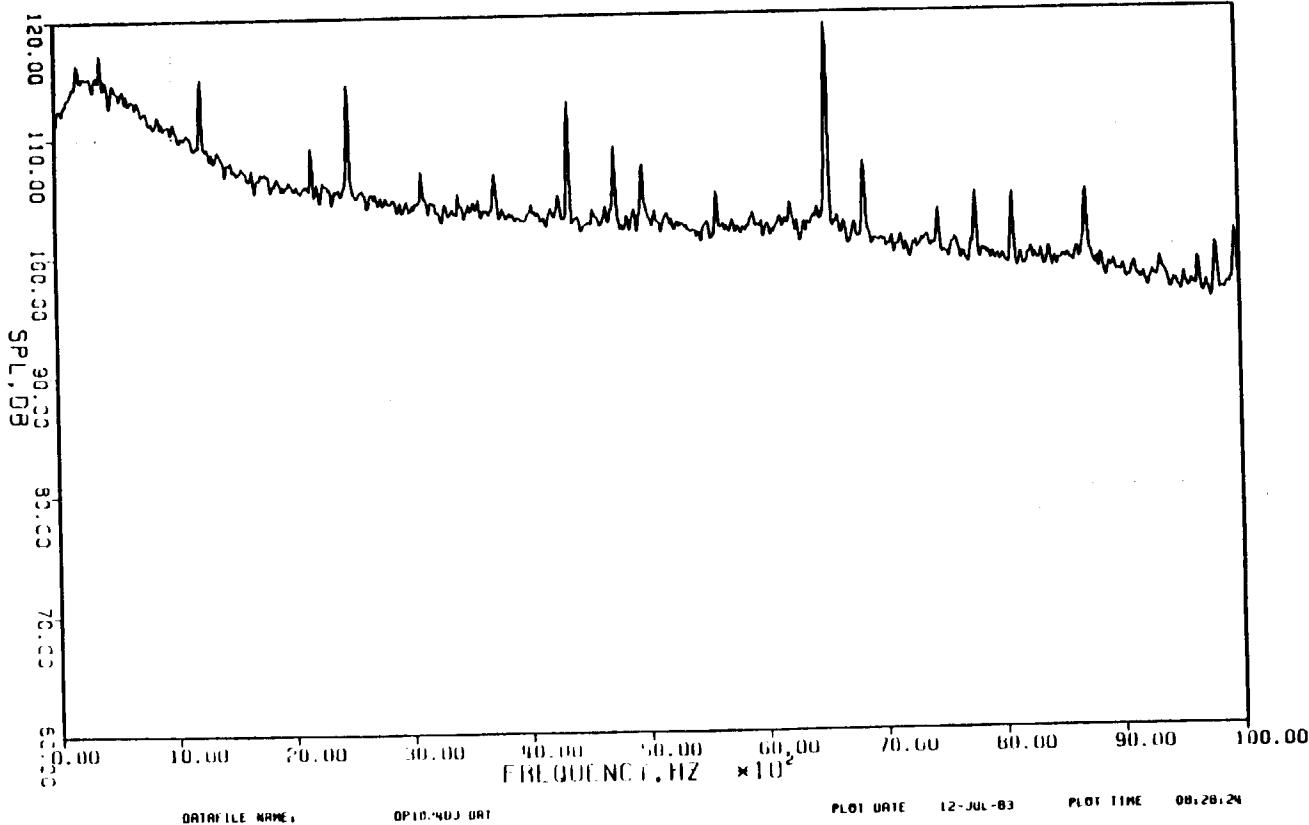
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### Appendix 9.4.16

#### AVERAGED SPECTRUM

KULITE PX14LF  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D . DATE: 8-JUN-83  
TAPE: E315 , 30 IPS  
FAN = 2335 RPM. CURE = 11650 RPM

RUN NO.	=10
PRINT NO.	=240
BPF	=1245
NO. OF BLADES	=32
TEMP DAT (INC.F)	=65.0
TEMP WAT (INC.F)	=55.5
MINOR TIME SEC (INC.F)	=39.50
BLINK =	=72
SAMPLE RATE (INC.F)	=25.600
H-OUT (IN INCHES)	=10.000
REC'D TIME (SEC.)	=0
RECORDING TIME	=100
WAVEFORM	=13
MINIMUM (IN INCHES)	=1
SENSOR Freq/Volt	=0.0316
SENSOR GAIN (DB)	=30
SENSOR CALIB (HRS)	=1.00
SENSOR CAL (M)	=17
SENSOR DIST (FT)	=150.0

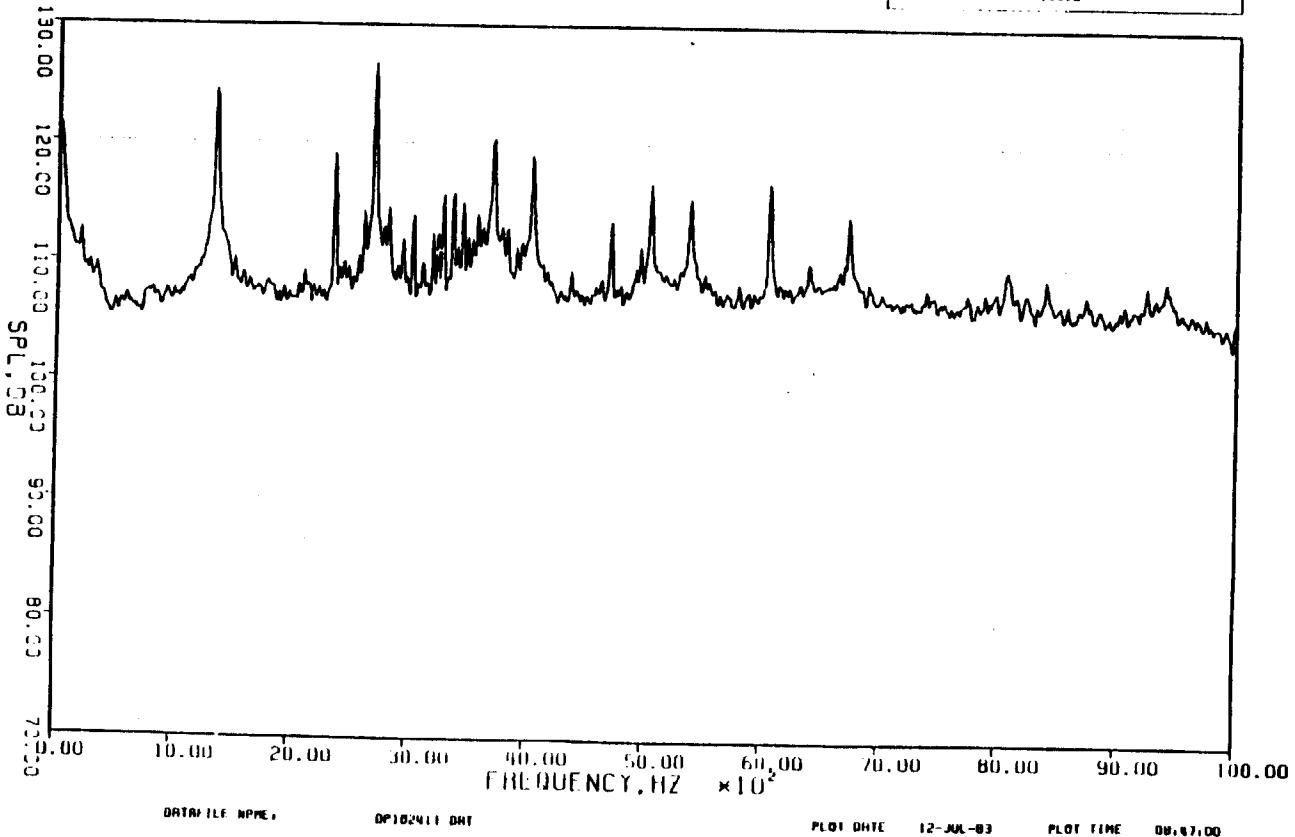


## Appendix 9.4.17

## AVERAGED SPECTRUM

KULITE PX10LC  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2519 RPM, CORE = 11866 RPM

RUN NO.	= 11
POINT NO.	= 241
BPF	= 134.0
NO. OF BLADES	= 32
TEMP DAY (DEG.F)	= 65.0
TEMP NIGHT (DEG.F)	= 58.5
BINNED PITCH (INCH)	= 29.50
BINNED SPAN (INCH)	= 24.000
SIMP. INDEX (INPUT)	= 24.000
WAVELET TRANSFORM	= 10.000
INTERGRAL TIME (SEC)	= 8
AVG. INDEX	= 100
WAVELET INDEX	= 13
MINIMUM INDEX	= 100
SEN1:00 (C/L VOLTS)	= 0.1000
SEN2:00 (CM IN RMS)	= 20
SEN3:00 (CM IN RMS)	= 1.00
SEN4:00 (CM IN RMS)	= 71
SEN5:00 DIST (FT)	= 150.0

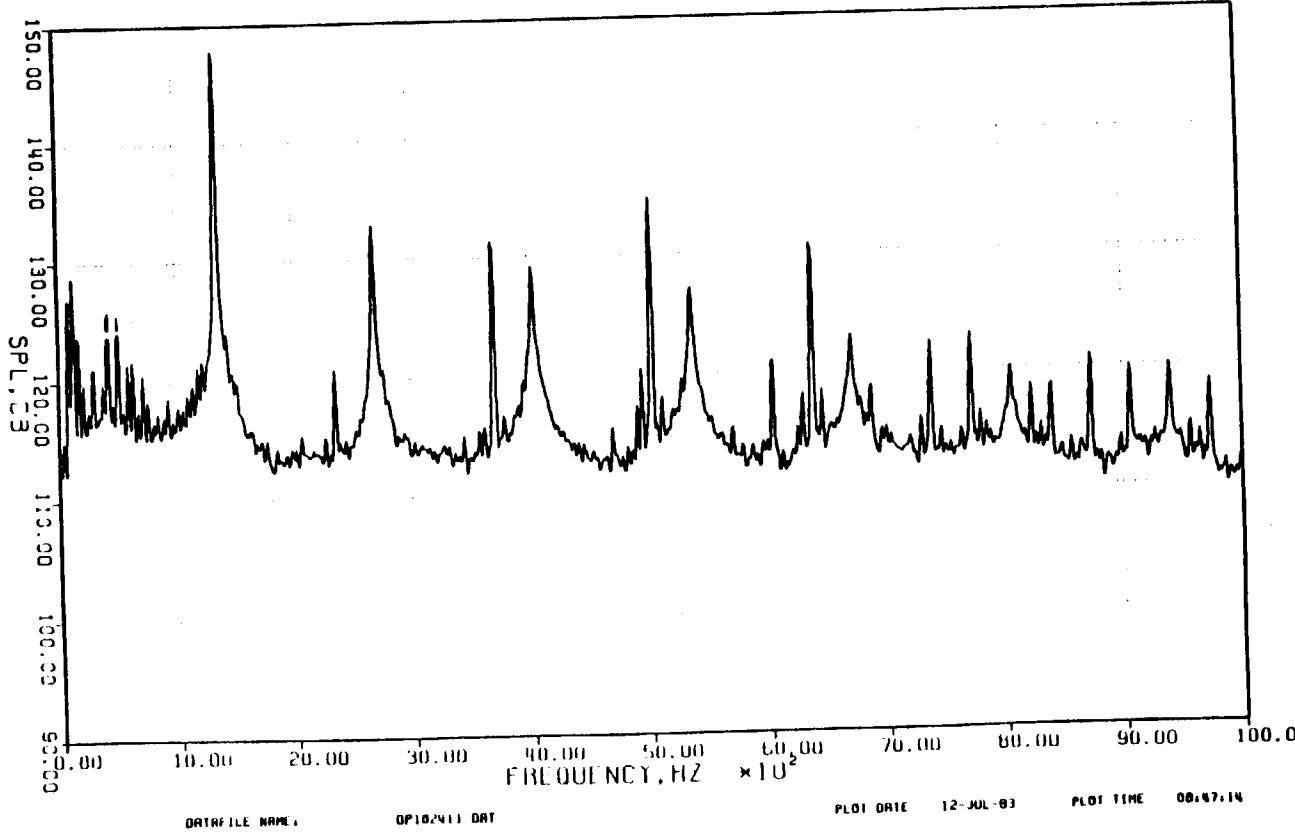


Appendix 9.4.18

AVERAGED SPECTRUM

KULITE PX12LC  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2519 RPM, CURE = 11066 RPM

RUN NO.	= 11
POINT NO.	= 241
BPF	= 1343
NO. OF BLADES	= 32
TEMP DRY (DEG.F)	= 65.0
TEMP WET (DEG.C.)	= 35.220
BIMD PITCH (*NG)	= 50.000
BLADE SP. (IN)	= 0.068
SHMP HAZZ (KHZ)	= 25.600
N/H (1111111111111111)	= 10.000
IN CORD TIME (SEC)	= 8
INV HAZZ	= 100
MINMAXDTH (HZ)	= 13
MINMAXWID (HZ)	= 13
MINMAXWID (HZ)	= 13
MINMAXWID (HZ)	= 13
SENSE01 C11/VOL1	= 0.3162
SENSE01 C11N VOL1	= 10
SENSE01 C11B RMS	= 1.00
SENSE01 C11 REF	= 171
SENSOR 0151 (FTI)	= 150.0



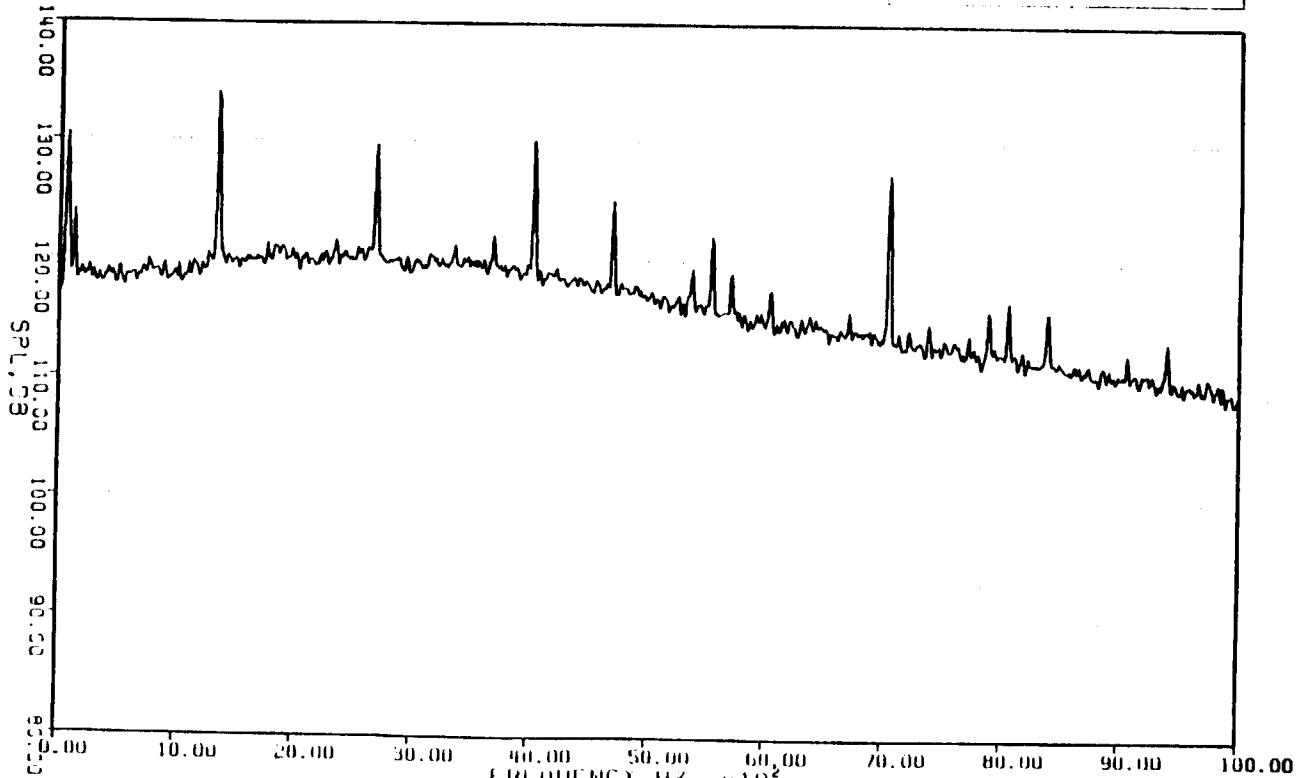
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## Appendix 9.4.19

## AVERAGED SPECTRUM

KULITE PX12LE  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY INFLATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2519 RPM, CORE = 1186G RPM

RUN NO.	-11
POINT NO.	-1343
SP1	-1343
NO. OF BLADES	-32
TEMP DAY (DEG.F)	-66.0
TEMP NIGHT (DEG.F)	-54.5
BINNED ACGS (deg.N)	-24.50
BINNED ROLL (deg.E)	-104.00
SHUT ANGLE (RAD)	-0.29500
ROLL ANGLE (RAD)	-0.10000
INTEGRATE TIME (SEC)	-0
INTEGRATE S	-100
INTEGRATE HZ	-13
WIND DIRECTION	-0
SEN.00 VEL(VOLT)	-0.3162
SEN.00 GEAR THSL	-10
SEN.00 GEAR RMS	-1.00
SEN.00 GM REL	-171
SEN.00 DUST (0.1) + 150.0	



DATAFILE NAME:

OPT0241J.DAT

PLOT DATE 12-JUL-83

PLOT TIME 08:47:58

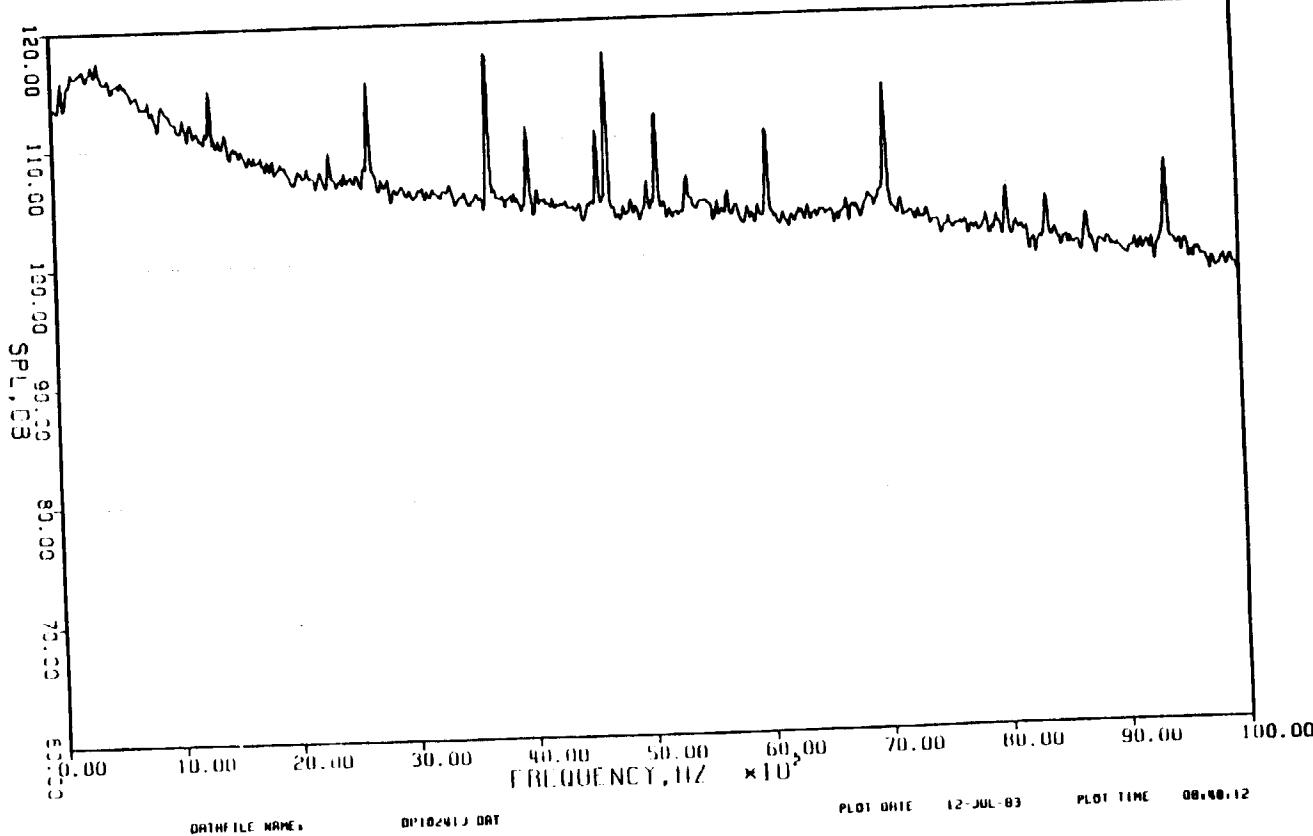
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### Appendix 9.4.20

#### AVERAGED SPECTRUM

KULITE PX14LF  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY THREADED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2519 RPM, CORE = 11866 RPM

RUN NO.	= 11
POINT NO.	= 241
BPF	= 1343
NO. OF BLADES	= 1
TEMP HAT (deg F)	= 45.0
TEMP TUBE (deg F)	= 54.5
BLADE PRESSURE (lb/in)	= 29.50
BLADE SPACING (in)	= 0.048
SIMPL ANTE (INCH)	= 0.1000
A/D FILTER (INCH)	= 0.000
REL TIME (SEC)	= 1.0
AVG HIST	= 100
REL HIST (INCH)	= 1.3
MINIMUM IN HIST	= 1
SEN-SOR PS/1/VOLT	= 0.1000
SEN-SOR CHIN TUBI	= 20
SEN-SOR CHIN RMS	= 1.00
SEN-SOR CHIN REF	= 1.0
SENSOR DIST (ft)	= 150.0

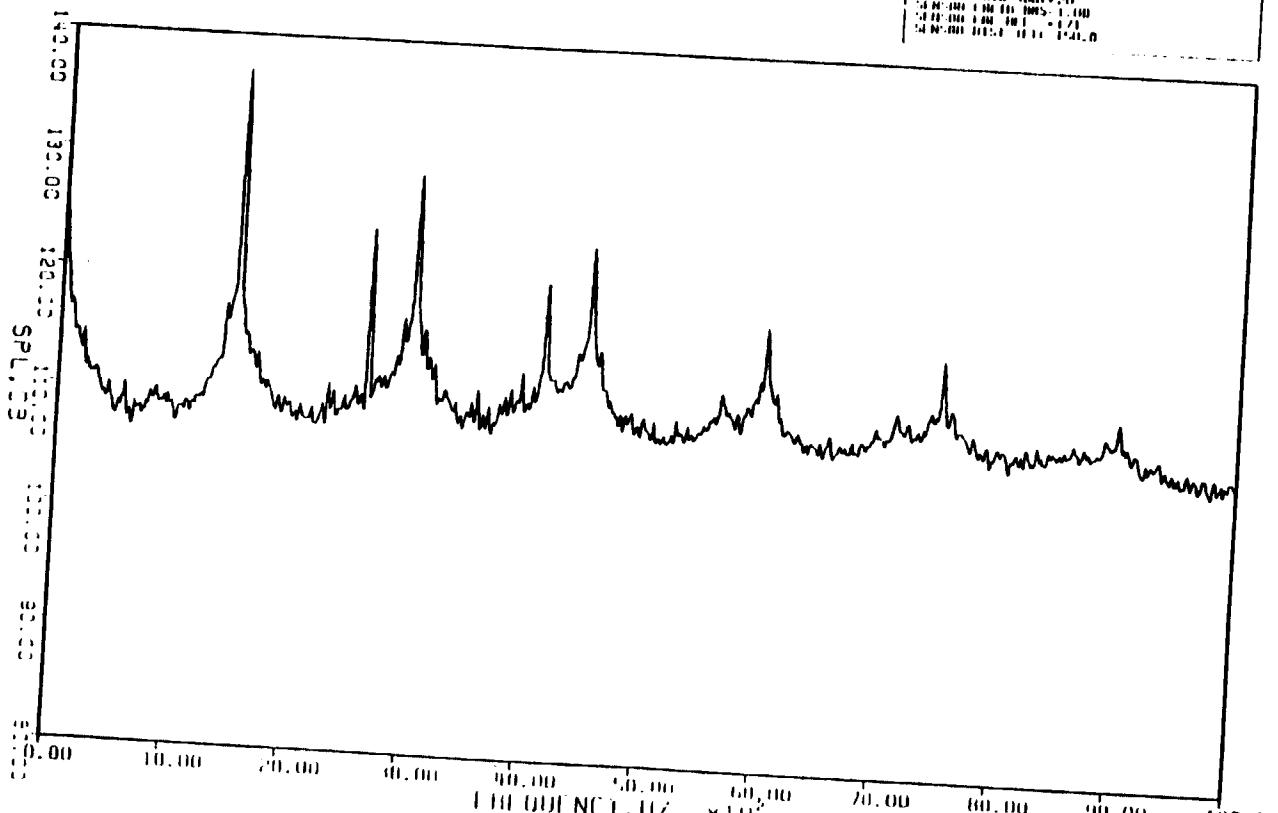


## Appendix 9.4.21

## AVERAGED SPECTRUM

KULITE PX10LC  
C CUBED PEBBLES TEST,  
CONFIG #1 FULLY TREATED  
SITE 40 , DATE: 8 JUN 87  
TAPE: E315 , 30 IPS  
FHIN = 2812 RPM, LONE = 112200 HP

RUN NO.	-12
POINT NO.	-262
HP	-1500
HP. IN. W. 0005	-12
TIME 007.000.00	-0.0
TIME 007.000.01	-0.0
WIND 000.00	-0.0
WIND 000.01	-0.0
WIND 000.02	-0.0
WIND 000.03	-0.0
WIND 000.04	-0.0
WIND 000.05	-0.0
WIND 000.06	-0.0
WIND 000.07	-0.0
WIND 000.08	-0.0
WIND 000.09	-0.0
WIND 000.10	-0.0
WIND 000.11	-0.0
WIND 000.12	-0.0
WIND 000.13	-0.0
WIND 000.14	-0.0
WIND 000.15	-0.0
WIND 000.16	-0.0
WIND 000.17	-0.0
WIND 000.18	-0.0
WIND 000.19	-0.0
WIND 000.20	-0.0
WIND 000.21	-0.0
WIND 000.22	-0.0
WIND 000.23	-0.0
WIND 000.24	-0.0
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WIND 000.26	-0.0
WIND 000.27	-0.0
WIND 000.28	-0.0
WIND 000.29	-0.0
WIND 000.30	-0.0
WIND 000.31	-0.0
WIND 000.32	-0.0
WIND 000.33	-0.0
WIND 000.34	-0.0
WIND 000.35	-0.0
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WIND 000.37	-0.0
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WIND 000.49	-0.0
WIND 000.50	-0.0
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WIND 000.52	-0.0
WIND 000.53	-0.0
WIND 000.54	-0.0
WIND 000.55	-0.0
WIND 000.56	-0.0
WIND 000.57	-0.0
WIND 000.58	-0.0
WIND 000.59	-0.0
WIND 000.60	-0.0
WIND 000.61	-0.0
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WIND 000.65	-0.0
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WIND 000.67	-0.0
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WIND 000.72	-0.0
WIND 000.73	-0.0
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WIND 000.75	-0.0
WIND 000.76	-0.0
WIND 000.77	-0.0
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WIND 000.80	-0.0
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WIND 000.91	-0.0
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WIND 000.94	-0.0
WIND 000.95	-0.0
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WIND 000.00	-0.0



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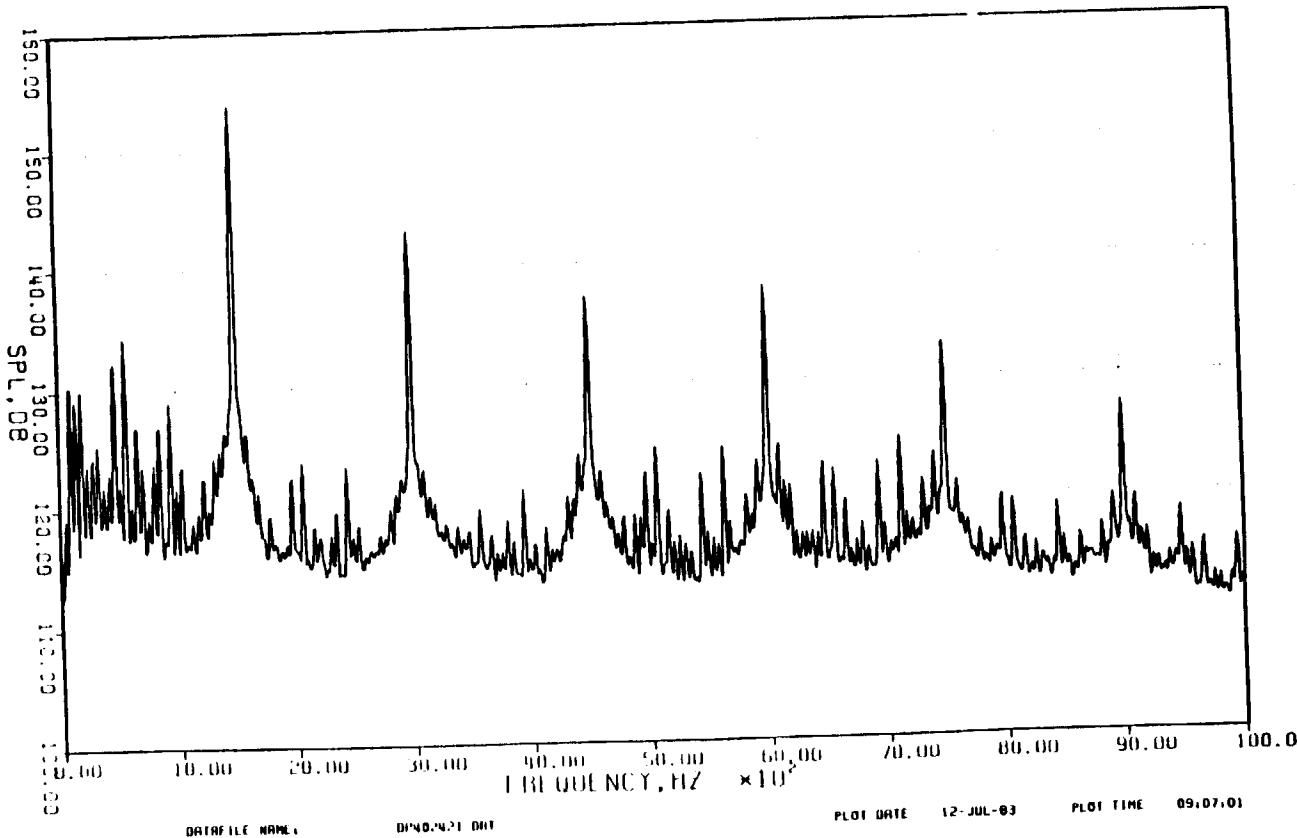
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Appendix 9.4.22

AVERAGED SPECTRUM

KULITE PX12LC  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D , DATE: 8-JUN-83  
 TAPE: E315 , 30 IPS  
 FAN = 2812 RPM, COHE = 112200 RP

RUN NO.	=12
POINT NO.	=262
POINT NO.	=1500
NO. OF BLADES	=32
TEMP DAT (DEG.F)	=65.0
TEMP WLT (DEG.F)	=54.5
BIRD PRESS (PSI)	=24.50
BIRD K RATE	=24.68
SPL MAX (INCH)	=25.600
SPL MIN (INCH)	=10.000
REL DNU (TIME SEC)	=8
REL DNU (S)	=100
BINNED DNU (INCH)	=1
MINIMUM SPL (INCH)	=1
SPL MAX (VST/VOLT)	=0.3162
SPL MIN (VST/VOLT)	=0.0
SPL MAX (IN HRS)	=1.00
SPL MIN (IN HRS)	=.171
SENSEON (VST)	=150.0



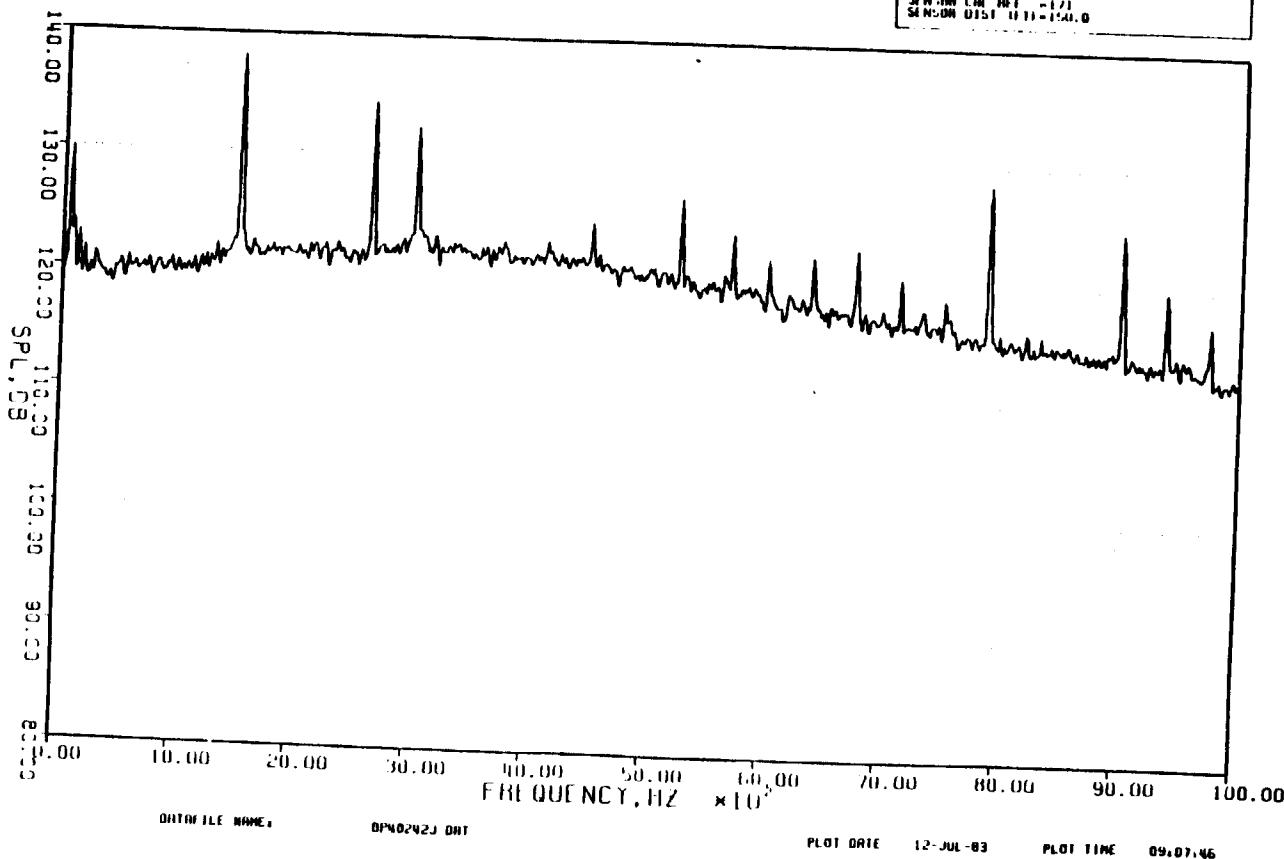
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## Appendix 9.4.23

## AVERAGED SPECTRUM

KULITE PX12LE  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY HEATED  
 SITE 40 , DATE: 8-JUN-83  
 TAPE: L315 . 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	-12
POINT NO.	-252
SPF	-1500
NO. OF BLADES	-32
TEMP DAY (deg F)	-58.0
TEMP NIGHT (deg F)	-58.0
BINN PRESS (PSI)	-29.50
BINN RATE	-1048
SAMP RATE (kHz)	-0.500
INT TIME (sec)	-10.000
INT TIME SEL	-10.000
AVG HOLE	-100
BINN WIDTH (Hz)	-12
BINN WID (Hz)	-1
SAMP/RB PSI/VOLT	-0.3162
SAMP/RB GAIN	-0.01
SAMP/RB GAIN 10 MARS	-1.00
SAMP/RB GAIN RPT	-171
SAMP/RB DIST 0.11	-150.0

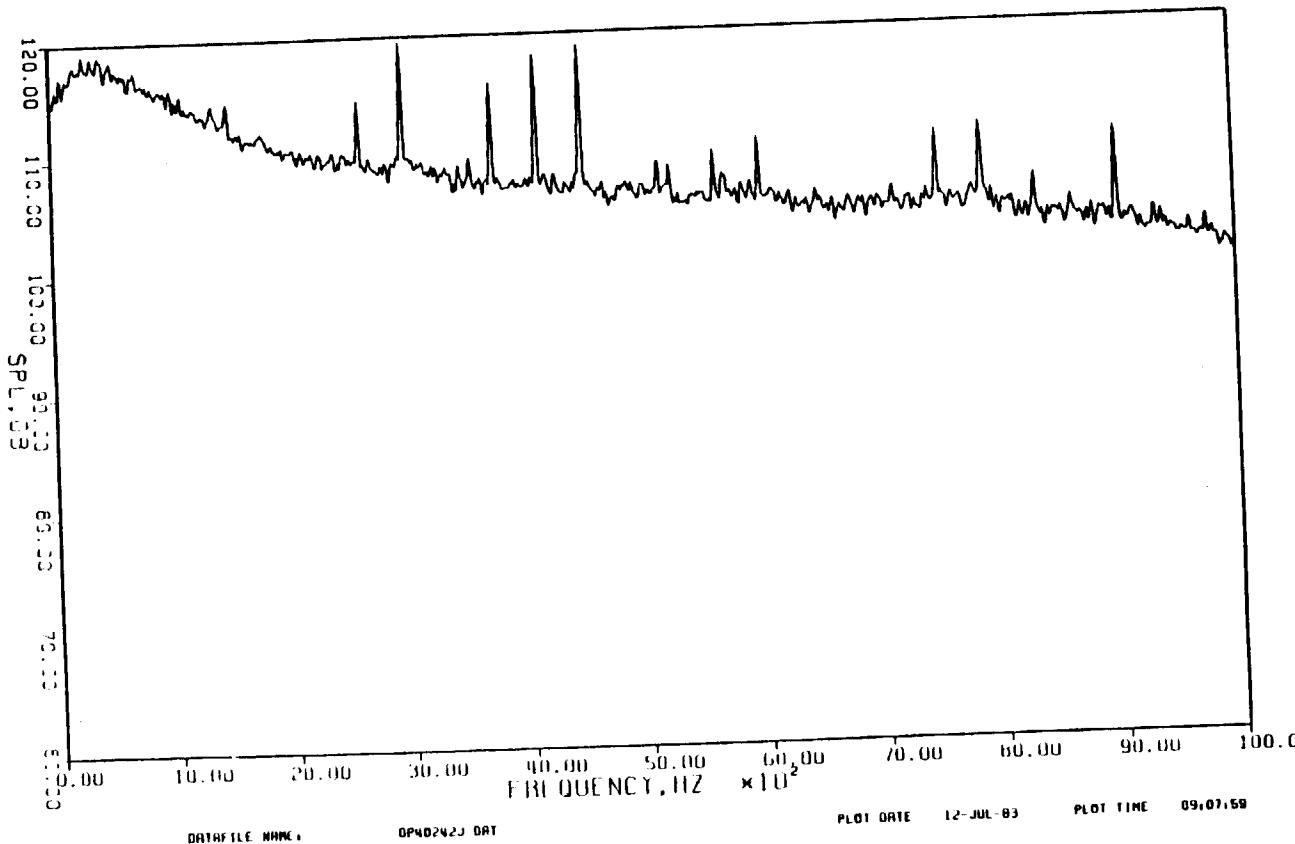


Appendix 9.4.24

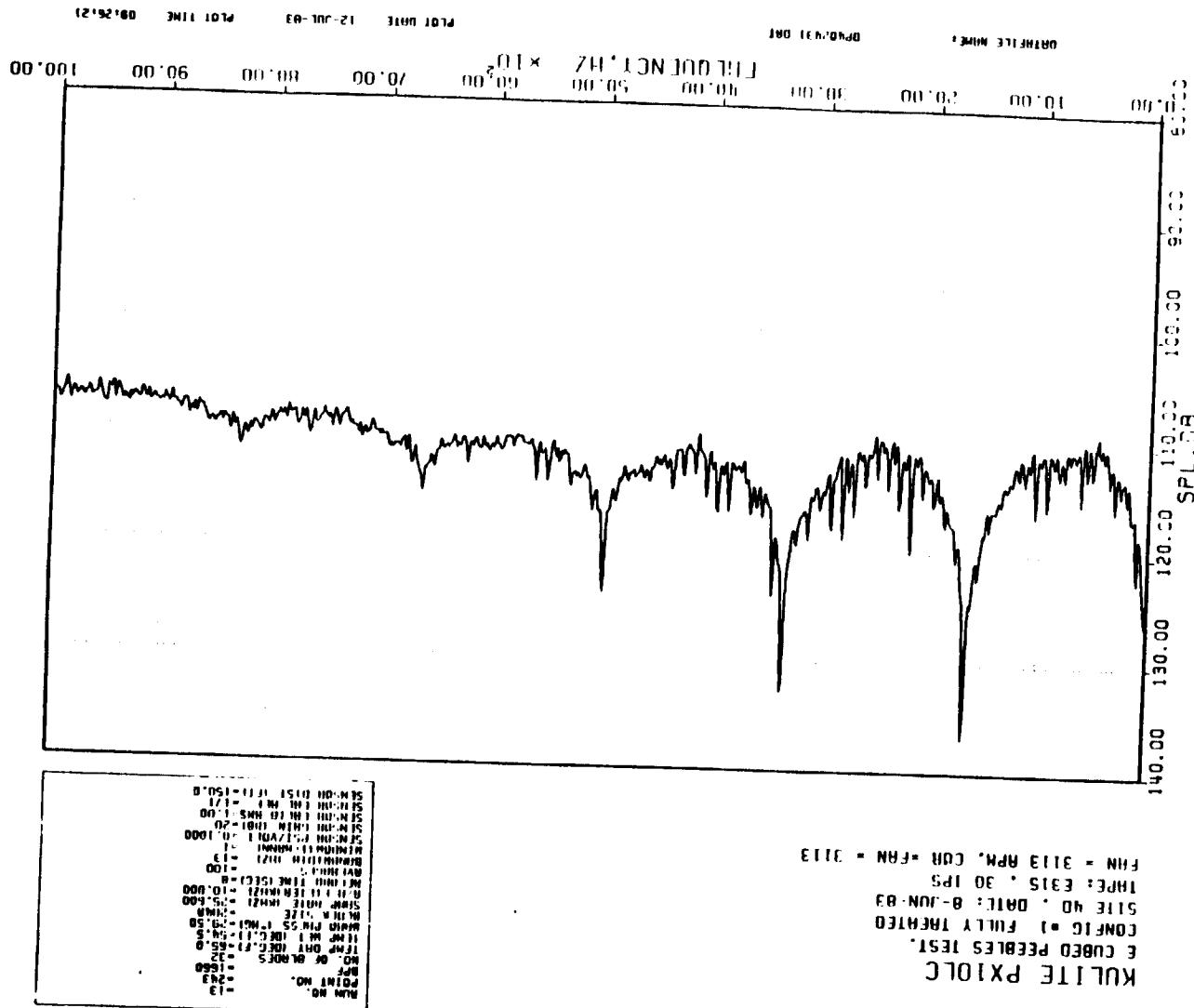
AVERAGED SPECTRUM

KULITE PX14LF  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 2812 RPM, CORE = 112200 RP

RUN NO.	= 12
POINT NO.	= 242
NO. OF BLADES	= 1500
TEMP WET (DEG.F)	= 65.0
TEMP WET (DEG.C)	= 18.3
AMBI PHSS (°MGT)	= 0.50
BLADE SIZE	= 104.00
SHEAR RATE (IN/HZ)	= 25.000
REC'D TIME (SEC)	= 8
AV. RHEOS	= 100
BANDWIDTH (HZ)	= 3
MINIMUM (1+RHO)	= 1
SENRH LHM (DB)	= 0.1000
SENRH LHM (DB)	= 20
SENRH CHL (DB RMS)	= 1.00
SENRH CHL (DB)	= 17
SENRH DIST (FT)	= 150.0



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AVERAGED SPECTRUM

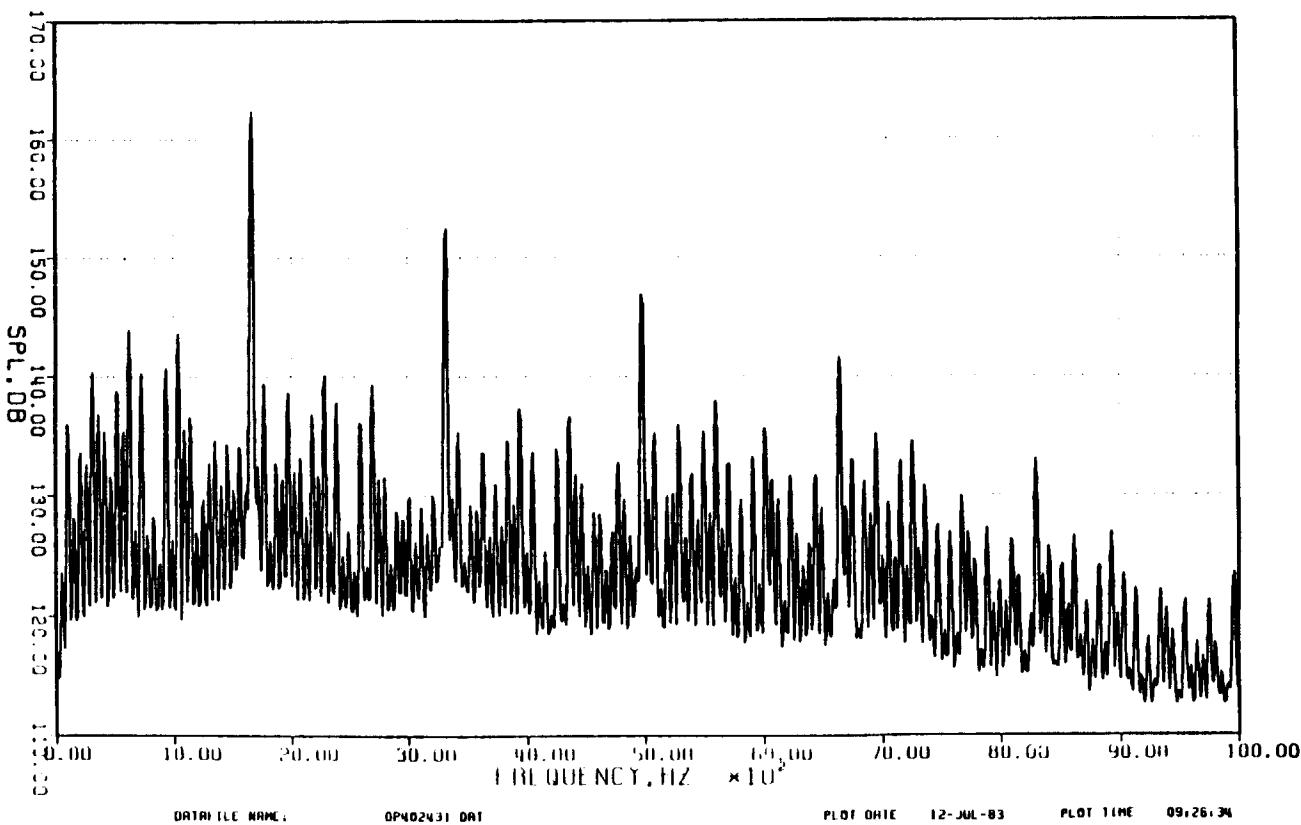
Appendix 9.4.25

### Appendix 9.4.26

#### AVERAGED SPECTRUM

KULITE PX12LC  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D . DATE: 8-JUN 83  
TAPE: E315 . 30 IPS  
FAN = 3113 RPM. CUR-FAN = 3113

RUN NO.	-13
POINT NO.	-243
BPF	-1660
NO. OF BLADES	-32
TEMP DAY (DEG.F)	-65.0
TEMP NIGHT (DEG.F)	-65.5
AMBI. PRESS (INHG)	-29.50
BLADE SIZE	-7MM
SAMP RATE (KHZ)	-25.600
REC'D TIME (SEC)	-10.000
REC'D TIME (MIN)	-100
REC'D TIME (HR)	-13
MIN/MAX (dB)	-12
SEN:IN 151/VOLT	-1.0000
SEN:IN 1001/DB	-0
SEN:IN CUR IN RMS	-1.00
SEN:IN CUR IN dB	-17
SENSOR ID#1	-150.0

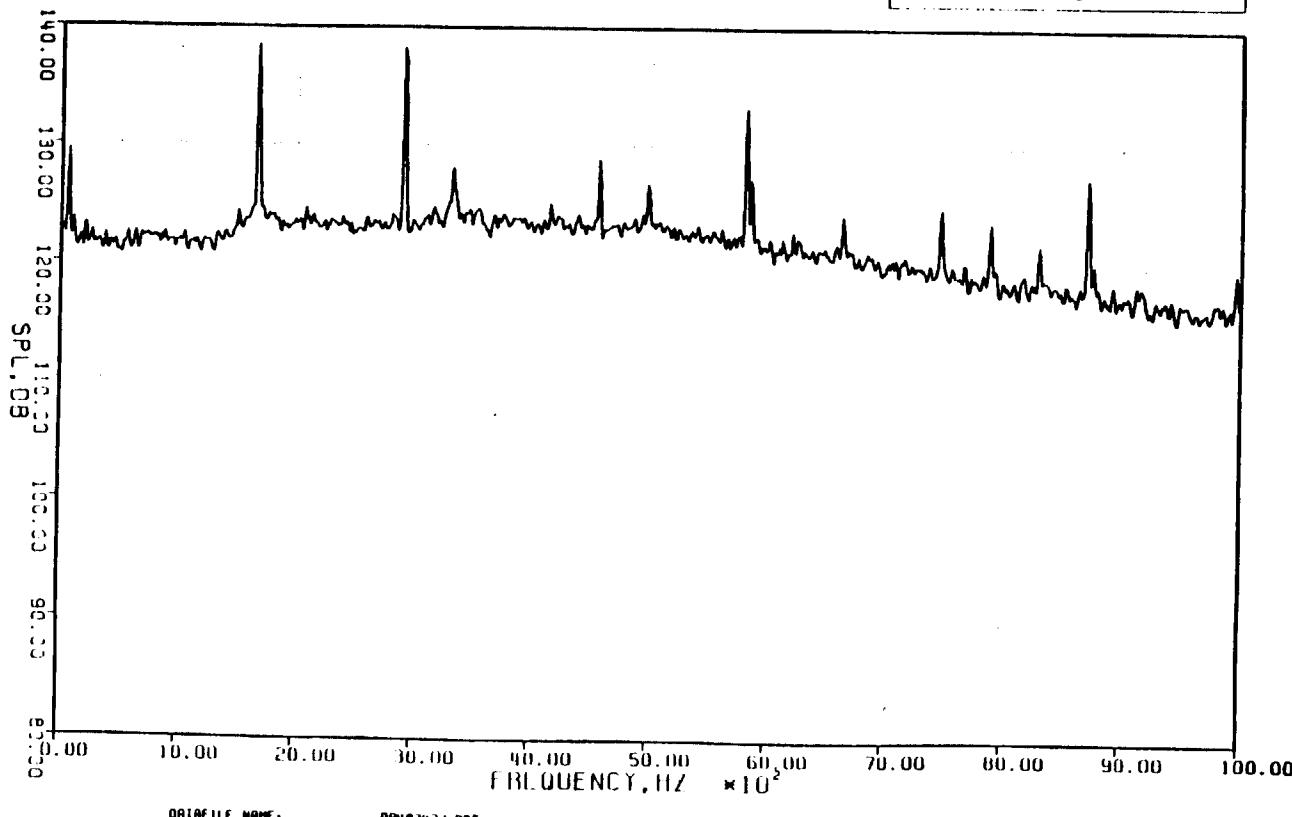


## Appendix 9.4.27

## AVERAGED SPECTRUM

KULITE PX12LE  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 40 . DATE: 8-JUN-03  
 TAPE: E315 , 30 IPS  
 FAN = 3113 RPM, COR -FAN = 3113

RUN NO.	=13
POINT NO.	=403
SPF	=1000
NO. OF BANDS	=32
TEMP. OUT (DEG.F)	=65.0
TEMP. INT (DEG.F)	=54.0
AMBI. FREQ 55 (HZ)	=29.50
BALM. FREQ (HZ)	=20400
SIM-DN L1(MHz)	=2.500
R/H FREQ (MHz)	=0.000
RECORD TIME (SEC)	=0
REL HUMID.	=100
WIND DIRECTION (HZ)	=13
WIND SPEED (MM/MM)	=0
SIM-DN VOLT	=0.3162
SIM-DN L1(MV)	=0
SIM-DN L1(RMS)	=1.00
SIM-DN L1(PER)	=1.0
SENSOR DIST (FT)	=150.0



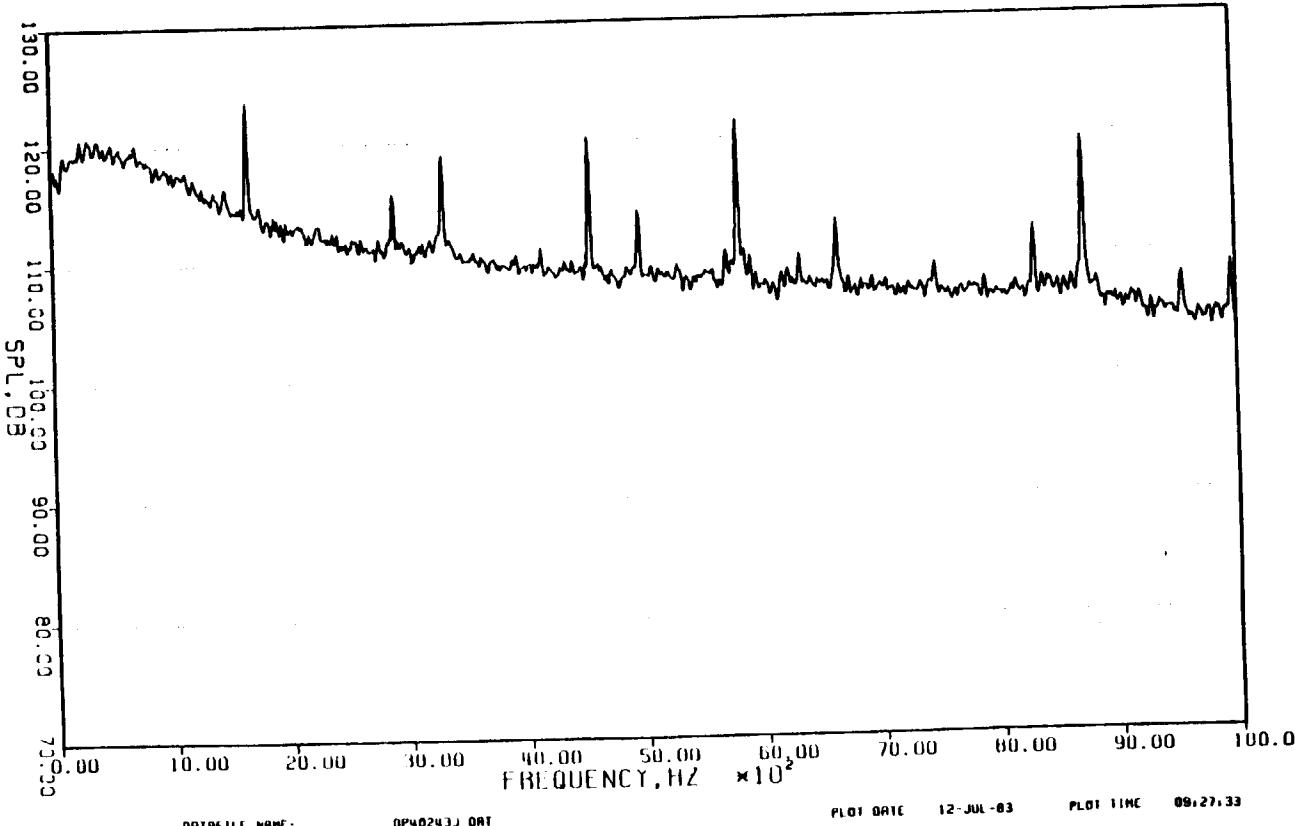
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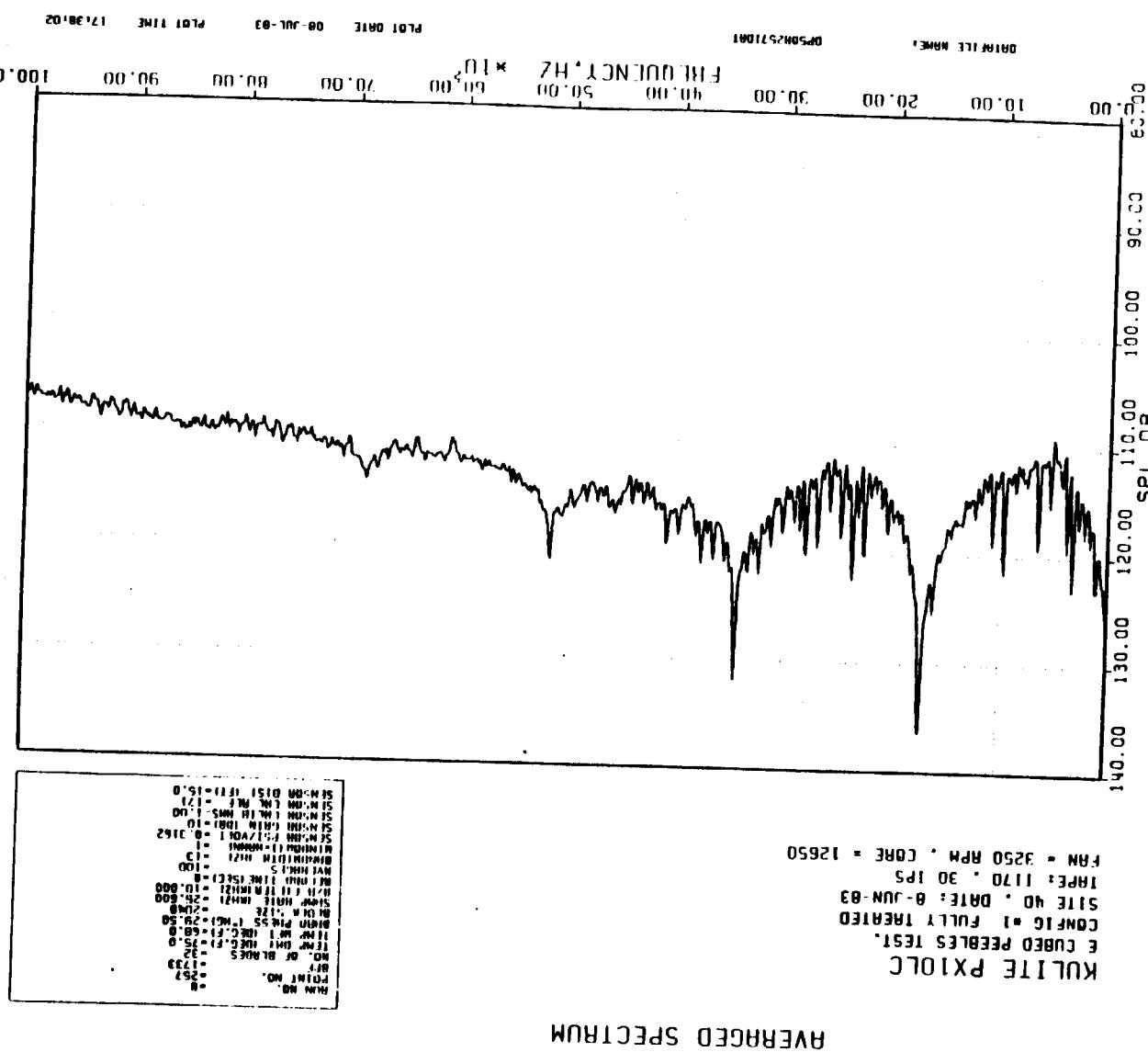
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 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: E315 . 30 IPS  
 FAN = 3113 RPM, COR +FAN = 3113

RUN NO.	= 13
POINT NO.	= 243
BPM	= 1660
NO. OF BLADES	= 32
TEMP DAY (DEG.F)	= 65.0
TEMP NIGHT (DEG.F)	= 54.5
BLADE PPS 1"NGL	= 29.50
BLADE SIZE	= 1/4"
SOME HARM (KHZ)	= 75.500
WAVELET (HZ)	= 10.000
REC TIME (SEC)	= 0
AVG HARM	= 100
BLADE WIDTH (HZ)	= 13
WINDWELL (HZ)	= 10000
SENSOR P11-VOL 1	= 0.1000
SENSOR CH11-VOL 1	= 20
SENSOR CH18-HMS	= 1.00
SENSOR CH18-REF	= 171
SENSOR DIST (FT)	= 150.0



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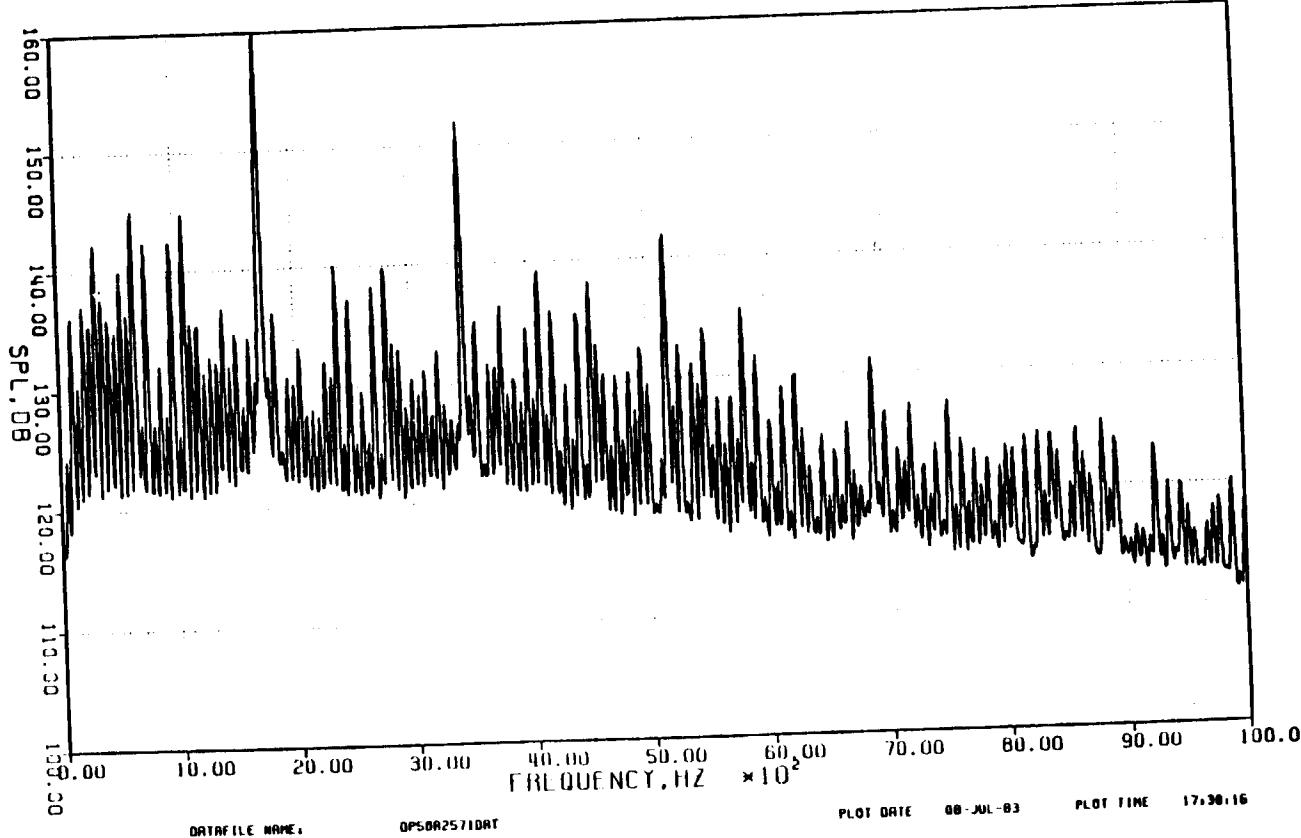


Appendix 9.4.30

AVERAGED SPECTRUM

KULITE PX12LC  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: 1170 . 30 IPS  
 FAN = 3250 RPM . CORE = 12650

RUN NO.	-8
POINT NO.	-257
BPF	-733
NO. OF BLINDS	-32
TEMP DAY (DEG.F)	-75.0
TEMP NIGHT (DEG.F)	-68.0
BINNO PIN 55 ("NGI)	-29.50
BINNO SIZE	-2048
SIMP INIT INTRV	-25.600
A/R TIME INTRV	-0.0000
REC TIME (SEC.)	-8
REF SIGNALS	-100
MINIMUM(10TH HARM)	-13
MINIMUM(11TH HARM)	-1
SEN:ON PS1/VOLT	-1.0000
SEN:ON CRIM (DB)	-1.00
SEN:ON CRIM (HRS)	-1.00
SEN:ON RE PER	-1.0
SEN:ON DISPL (1)	-15.0



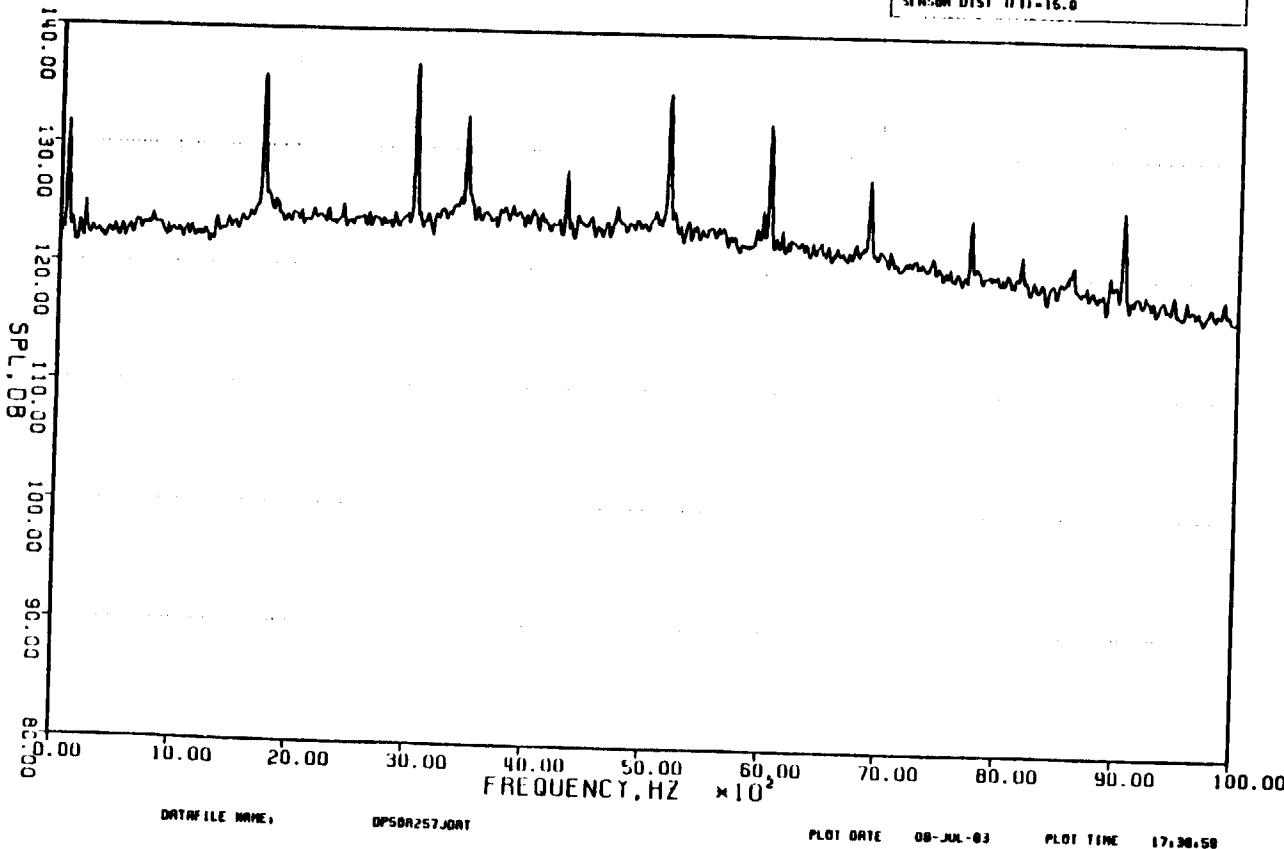
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## Appendix 9.4.31

## AVERAGED SPECTRUM

KULITE PX12LE  
 E CUBED PEEBLES TEST.  
 CONFIG #1 FULLY TREATED  
 SITE 4D . DATE: 8-JUN-83  
 TAPE: 1170 . 30 IPS  
 FAN = 3250 RPM . CORE = 12650

RUN NO.	-8
POINT NO.	-257
SPW	-1730
NO. OF SPINDLES	-1
TEMP WAT (INEC,F)	-76.0
TEMP WAT (INEC,F)	-68.0
MINI PHESS 1"NG1	-29.50
BIN/PA SIZE	-2048
CALIBRATE (HZ)	-25.500
DATA FILE NAME (INZ)	-10.000
INT. TIME (SECS)	-10.000
AVG HZ(S)	-100
BINNOM (INZ)	-13
BINNOM (IN-NORM)	-1
SENSITIV (PSI/VOLT)	-0.3162
SENSITIV (VOLTS)	-10
SENSITIV (IN 18 INCHES)	-100
SENSITIV (IN REF)	-171
SENSITIV (DIST. (FT))	-15.0



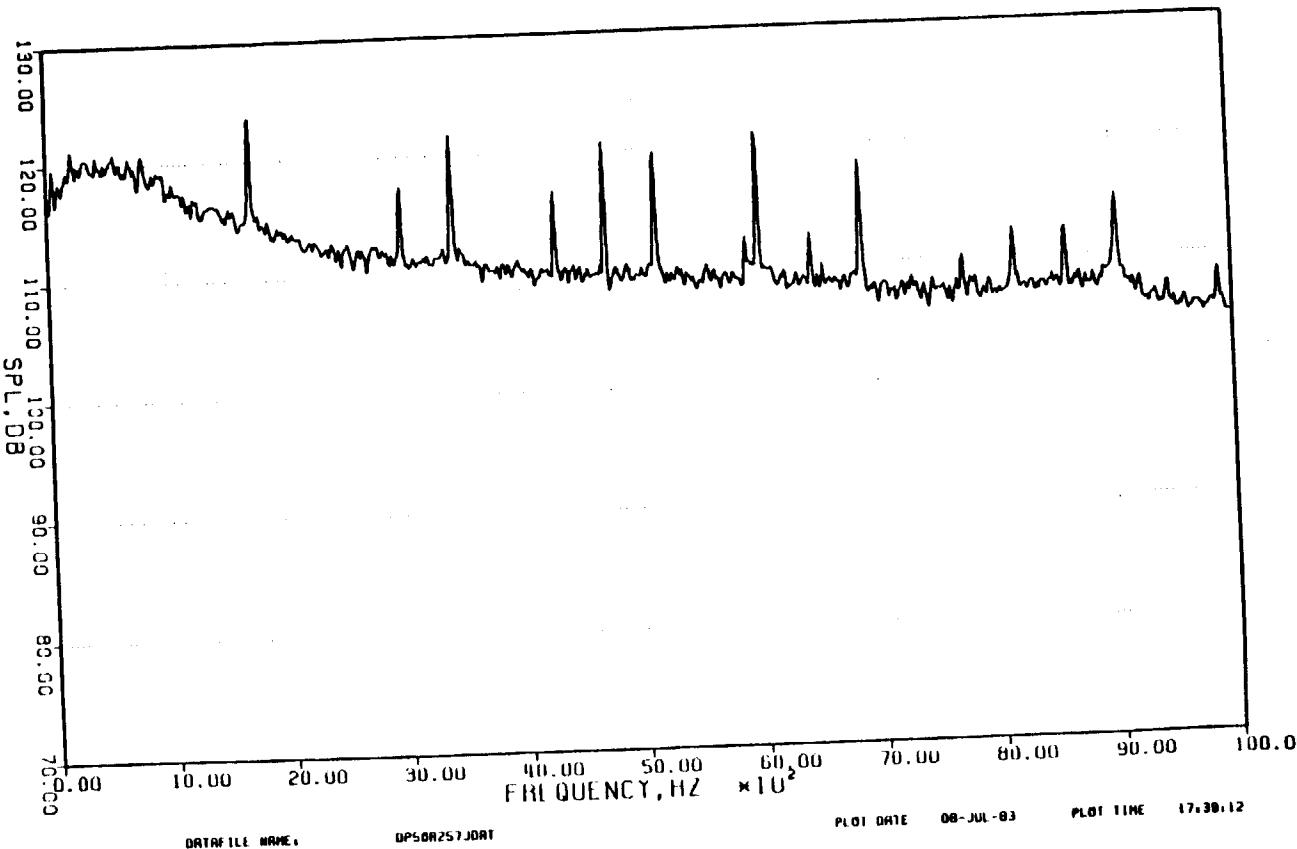
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AVERAGED SPECTRUM

KULITE PX14LF  
E CUBED PEEBLES TEST.  
CONFIG #1 FULLY TREATED  
SITE 4D . DATE: 8-JUN-83  
TAPE: 1170 , 30 IPS  
FAN 3250 RPM . CORE = 12650

RUN NO.	-8
POINT NO.	-257
BPF	-1730
NO. OF BLADES	-32
TEMP DAT (DEG.F)	-76.0
TEMP WET (DEG.F)	-68.0
BOARD PRESS (HGU)	-29.50
BLADE SPACER	-21.60
SUMP NAME (HZ)	-21.60
R/H FILL (EA HZ)	-10.000
REFLECT TIME (SEC)	-8
RFV HZES	-100
BANDWIDTH (HZ)	-13
MINMAX (AVERAGE HZ)	-1
SECTOR PSI/VOL	-0.1000
SENSOR GAIN (DB)	-20
SENSOR CAL (RMS)	-1.00
SENSOR CAL PER	-171
SENSOR DIST (FT)	-15.0



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